DOCUMENT RESUME

ED 373 040 SP 035 381

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| TITLE | Fire Safety Power. Sixth Grade. Fire Safety for Texans: Fire and Burn Prevention Curriculum Guide. |
| INSTITUTION | Texas State Commission on Fire Protection, Austin. |
| PUB DATE | May 93 |
| NOTE | 50p.; For other guides in the series, see SP 035 375-385. |
| AVAILABLE FROM | Texas Commission on Fire Protection, Fire Prevention Education, P.O. Box 2286, Austin, TX 78768. |
| PUB TYPE | Guides - Classroom Use - Teaching Guides (For Teacher) (052) |
| EDRS PRICE | MF01/PC02 Plus Postage. |
| DESCRIPTORS | Electricity; *Fire Protection; First Aid; Grade 6; Injuries; Instructional Materials; Intermediate Grades; Learning Activities; Lesson Plans; Physics; Prevention; *Safety Education; State Curriculum Guides |
| IDENTIFIERS | *Texas |

ABSTRACT

This booklet comprises the sixth grade component of a series of curriculum guides on fire and burn prevention. Designed to meet the age-specific needs of sixth grade students, its objectives include: (1) developing a comprehensive understanding of fire physics, (2) evaluating electrical hazards and how to respond to those hazards, and (3) continuing study of first aid for burns. Texas essential elements of instruction that may appropriately be integrated with the fire prevention curriculum are listed. The booklet's three sections provide lesson plans, teacher materials, and student materials. The five lessons are: "Physics of Fire, Almost Like Magic"; "Electricity"; "Home Safety"; "Fire Response"; and "Burn Response." Each lesson plan includes objectives; a list of materials; and suggestions for a focus activity, presentation of content, guided and independent practice, reteaching, enrichment, and closure. A pretest/posttest is provided, along with activity sheets to be photocopied. A scope and sequence chart covering kindergarten through high school is also presented. (JDD)

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# Fire Safety for Texans

**Fire and Burn Prevention Curriculum Guide Developed by Texas Commission on Fire Protection**

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## Sixth Grade

# Fire Safety Power

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Texas Commission on Fire Protection
P.O. Box 2286 Austin, TX 78768-2286 (512) 918-7100 FAX (512) 918-7107

Dear Educator:

The Texas Commission on Fire Protection is pleased to provide this curriculum guide to facilitate the teaching of fire prevention. To understand why instruction in fire prevention must be matched to the developmental needs of students, please read the Introduction section beginning on Page 3. This introduction also tells how fire prevention education can be coordinated with the instructional requirements of Texas schools.

We welcome your comments and suggestions. Please telephone or write to share your successes and questions with our staff. Also, we invite you to request guides for other grade levels and additional copies of this booklet by clipping and returning the form below.

Your involvement in fire prevention education will be appreciated by your students and your entire community.

Sincerely,

Anne Easterling
Program Administrator
Fire Prevention Education

✂ ----------

Please send the following curriculum guide(s):

| Grade Level | Quantity | Grade Level | Quantity | Grade Level | Quantity |
|---|---|---|---|---|---|
| Kindergarten | | Fourth Grade | | Seventh Grade | |
| First Grade | | Fifth Grade | | Eighth Grade | |
| Second Grade | | Sixth Grade | | High School Health | |
| Third Grade | | | | High School Economics | |

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# Fire Safety for Texans

Fire and Burn Prevention
Curriculum Guide Developed by
Texas Commission on Fire Protection

*Sixth Grade*

# Fire Safety Power

Published May 1993
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# Fire Safety for Texans

**The complete series from the Texas Commission on Fire Protection**

**Kindergarten**
Fire Safe Together

**First Grade**
Fire Safety: Any Time, Any Place

**Second Grade**
Making Me Fire Safe

**Third Grade**
Positively Fire Safe

**Fourth Grade**
Fire Safety: Stop the Heat

**Fifth Grade**
Charged Up For Fire Safety

**Sixth Grade**
Fire Safety Power

**Seventh Grade**
Responsible For Fire Safety

**Eighth Grade**
Fire Safety's My Job

**Health (High School)**
A Lifetime For Fire Safety

**Economics (High School)**
Fire Safety For Consumers

# Scope and Sequence for Fire and

| | Kindergarten | First Grade | Second Grade | Third Grade | Fourth Grade |
|---|---|---|---|---|---|
| **General Objectives** | basic awareness of fire and burn dangers; simple actions to reduce injury; parent involvement | basic knowledge of fire and burn hazards; basic understanding of simple injury reduction; continuation of parent involvement | basic understanding of how to prevent and put out fires; greater self-direction to prevent and react to fire, smoke or burn situations | hazards and safe storage of flammable liquids, positive actions to prevent fires and burns or to reduce injuries, especially related to metallic objects | principles of extinguishing fires; issues related to peer pressure related to fire setting; self-motivation to effect changes with family involvement; role of fire service in the community |
| **Science of Fire**<br>understands and analyzes facts about fire | classifies "good" and "bad" fires and heat sources "25(a)3A, 26(a)1C | identifies three elements of fire triangle "25(b)2C<br>lists and classifies things that do and do not burn "25(b)3B,5B | explains putting out a fire as removing or controlling one element "25(c)3B, 26(c)1C<br>defines and gives examples of controlled and uncontrolled fires "25(c)3B, 26(c)1C | defines and gives examples of combustible, noncombustible, flammable and nonflammable materials, with relation to gas, liquid and solid states "25(d)7A, ""3.1,3.5 | interprets three elements of fire to explain how to prevent and extinguish fires "25(e)6B, 26(e)1G<br>describes characteristics of heated gases from fires "25(e)4B, 26(e)1G |
| **Safety Communication**<br>knows and applies terms and symbols associated with fire and burn safety | identifies EXIT signs in schools and public buildings "29(a)1E<br>identifies "hot" and "cold" symbols on faucets "26(a)1C, 29(a)1E | | | | |
| **Injury Reduction**<br>knows, performs and analyzes techniques to reduce fire and burn injuries | demonstrates and practices rolling on ground in case of clothing fire "25(a)3C, 26(a)1C, 29(a)1D<br>demonstrates and practices crawling on ground in smoke of fire situations "25(a)3C, 26(a)1D | demonstrates cooling a burn with cool water "25(b)5B, 26(b)1C, ""1.1<br>demonstrates and describes crawling in suspected smoke or fire situation because smoke rises "25(b)2C, 26(b)1C, ""1.1<br>demonstrates and describes rolling to put out clothes fire "26(b)1C, ""1.1 | explains using cool water to reduce burn injury "25(c)7B, 26(c)1C<br>explains that rolling on ground keeps air from fire on clothes "25(c)7B, 26(c)1C<br>explains that smoke and gases from fire can affect thinking "25(c)7B, 26(c)1C | explains injury reduction skills to others through song, dance, story, demonstration, etc. "26(d)1D,1E | lists and describes effects of toxic gases in smoke and fire byproducts "25(e)7B, 26(e)1G, "" 1.4 |
| **Hazard Recognition**<br>recognizes fire and burn hazards at home, play and work | classifies hot and cold objects, including cigarettes and appliances "25(a)1A,3A, 26(a)1C<br>identifies smoking cigarettes as a hazard to cause burns and to start fires "26(a)1D | distinguishes electrical objects, a potential heat source, as having cords "25(b)3B,4B<br>identifies home and community as city or rural and types of related fire risk "25(b)6D, 29(b)6A, ""1.6 | predicts how electrical appliances can become hazards through carelessness, misuse, damage, including unattended cooking "25(c)6A, 26(c)1C<br>identifies special holiday hazards related to family customs or traditions "26(c)1C, 29(c)6B | classifies metallic and non-metallic objects "25(d)3B, ""3.6<br>distinguishes metallic objects as contact burn hazards "25(d)6B,8A, 26(d)1E<br>identifies positive behaviors with hazardous appliances "26(d)1E | describes types of hazards from discarded cigarettes "26(e)1F |
| **Hazard Reduction**<br>applies and values techniques for reducing or eliminating fire and burn hazards | states rule to stay away from hot objects "26(a)1C, 29(a)1A<br>tells parents, "Keep me safe from fire" "29(a)1B | describes or illustrates need for smokers to have watchers "25(b)7B, 26(b)1D<br>encourages parents to conduct home inspection using provided checklist "25(b)7B, 26(b)1C,2B | describes benefit of family working together to reduce fire and burn hazards "26(c)2B<br>writes at least five rules for safe behavior "25(c)1C | conducts inspection for safe flammable storage with parents using provided checklist "26(d)1E,2B<br>identifies fire safety for holidays in each month "26(d)1E | demonstrates reactions to hazardous situations, including removal of fire hazards "26(e)1F<br>identifies safety features in school, home and other buildings "26(e)1F,1G |
| **Escapes And Drills**<br>knows and applies methods of fire and smoke warnings and escape and exit techniques; values the importance of smoke detectors and escape planning | demonstrates actions in school exit drills "26(a)1C, 29(a)1D | identifies smoke alarm as warning to get out "26(b)1C<br>draws map of home with two ways out for everyone "25(b)4D<br>states steps and rules for school exit drill "26(b)1C, 29(b)4B | describes general guidelines for smoke detector placement (each level, outside bedrooms) "26(c)1C<br>describes or illustrates alternate ways out of a building "26(c)1C<br>organizes home drill "26(c)1C,2B, 29(c)1C | gives details of action at home alone in suspected fire situations "26(d)1D<br>assists parent in maintaining smoke detector using provided guidelines "25(d)7B, 26(d)1E,2B<br>identifies low battery warning on smoke detector "26(d) 1D | explains need for exit plans and drills, especially at home "25(e)6A, 26(e)1F,2C, 29(e)1A, ""1.8 |
| **Matches And Firesetting**<br>recognizes hazards of matches, lighters and other firesetting instruments; knows and values techniques for reducing intentional fires | demonstrates telling an adult if he/she sees matches "26(a)1C, 29(a)1A | describes or illustrates matches as tools for adults "26(b)1C | describes why matches are not toys "26(c)1C | describes how matches can be used safely "26(d)1E | demonstrates resisting peer pressure related to fire, matches and smoking "29(e)1C, ""1.8 |
| **Reporting A Fire**<br>knows and applies appropriate methods of reporting suspected fire or smoke situations | demonstrates telling an adult about smoke or fires "25(a)3C, 26(a)1C | demonstrates yelling and other signals to warn others "26(b)1C<br>memorizes emergency telephone number "26(b)1C | demonstrates dialing emergency telephone number "26(c)1C<br>demonstrates giving name and address "26(c)1C | describes or demonstrates what to report in an emergency situation "26(d)1D | describes local locations and uses of fire alarm boxes "26(e)1F |
| **Care Giving**<br>understands and values appropriate supervision of and intervention for other people, especially young children and older adults | tells parents to give fire safety rules to baby-sitter "26(a)1C | | | writes rules for baby-sitter or care giver for family, with parents' assistance and consideration of ages of family members "26(d)2B, 29(d)2A, 6B | |
| **The Fire Service**<br>understands and values the role of the fire service in preventing and suppressing fires | identifies fire fighters and other fire service workers as friends "29(a)1B | describes fire fighter as community helper who helps prevent fires and who puts out fires "25(b)7C, 29(b)4C, ""1.7 | identifies ways that fire fighters are involved in fire suppression and prevention "29(c)4A | | lists the four primary services provided by the fire services "26(e)3A<br>describes fire department's role in helping the community stay safe and healthy "26(e)3A, ""1.7 |
| **Outdoor Safety**<br>knows and applies techniques for reducing outdoor fires and injuries from outdoor fire and burn hazards | demonstrates or illustrates staying away from campfire, trash burning, etc. "26(a)1C | distinguishes how outdoor fires are different from building fires "25(b)6D, 26(b)3, ""1.6 | identifies outdoor electrical hazards (storms, tools, campfires) "25(c)4B, 26(c)3A, ""2.9 | | describes safe practices with fireworks "29(e)3B, ""1.8<br>writes at least five rules for outdoor fire safety "26(e)3B |



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# Burn Prevention Education In Texas

| Fifth Grade | Sixth Grade | Seventh Grade | Eighth Grade | Health | Economics |
|---|---|---|---|---|---|
| heating equipment safety; impact of fire on outdoor environment and methods to reduce that impact; first aid for burns; personal relationship to community fire safety | fire physics; electrical hazards and responding to those hazards; continuation of first aid for burns | responsible decision-making regarding fire and burn hazards, including peer pressure related to fire risks; preparation for and reaction to possible fire situations | technical aspects of fire hazards and detection; fire hazards outside the home | review of fire and burn prevention techniques and emergency actions; awareness of needs of all age groups; smoking and flammable liquids | awareness of adult responsibilities to preserve family, property and economy; preparation for maintaining one's own home; U.S history of fire and burn incidents |
| | lists types of heat and fuel to define classes of fire *25(g)2D, **3.1<br>describes fourth element of fire, uninhibited chemical reactions *25(g)4B, **3.1<br>describes three types of fire extinguishers *26(g)1H | | defines and describes flash point, flash fire, flammability of construction and clothing types *44(b)7D | | |
| analyzes product advertisements for fire and burn safety information *26(f)2A | | analyzes product labels for fire safety, including flammable or combustible warnings, nonflammable labels *44(a)11C<br>communicates hazards of smoking, using written, illustration or oral format *48(a)1D | | identifies and describes cigarette health messages and writes cigarette fire safety messages *65(a)1A,1D,2A<br>identifies and describes flammable liquid warnings on home-use products, cleaners, gasoline, etc. *65(a)1E | defines terminology relating to fire insurance and home safety (detectors, sprinklers, etc.) *69-4D |
| describes three classes of burns and first aid for each *26(f)1G,2D | classifies six types of burns by causes (contact, UV, chemical, etc.) *26(g)2D<br>describes special first aid actions for burns other than contact burns *26(g)2D | | | lists best actions in suspected fire or smoke situations and first aid for three types of burns *65(a)1E | |
| explains hazards of heating equipment, including safety considerations such as UL inspection certification and proper placement *25(f)7B, 26(f)1H, **2.6<br>analyzes safety of alternative heating 25(f)6E, 26(f)1H), **2.6 | describes why electricity and electrical appliances are fire and burn hazards, relating amount of energy used by various appliances to their risk *25(g)6D, **3.4 | | lists at least 10 typical hazards in the workplace, including industrial, retail and office *44(b)3 | describes role of carelessness in fires and burn injuries, including cigarettes, heating and cooking *65(a)1B,1D,1G<br>organizes and conducts comprehensive home inspection, including outdoors and noniving areas *65(a)1B,1E,1G | describes the economic impact of fires and related casualties in the U.S. *69-1B,1G |
| conducts inspection of home heating equipment with parents to check for safe usage *25(f)7B, 26(f)1H, **2.6<br>gives examples of correcting holiday hazards *26(f)1H | develops holiday checklist that applies fire safety rules *25(g)7B, 26(g)1H,2C | writes at least 10 rules for smokers *44(a)11B,C<br>describes safe practices with fire hazards commonly found in home or outdoors *44(a)11C<br>develops and implements home survey instrument *44(a)11C | describes desire to be safe and to keep others safe *44(b)7D | organizes and conducts comprehensive home clean-up, including outdoors and noniving areas *65(a)1B,1E,1G | describes fire and burn safety responsibilities of consumers and residents *69-1G,4A<br>identifies hazard reduction efforts of various organizations, agencies *69-2A, 4B |
| evaluates school exit drill *25(f)2D,6A, 26(f)1H (rules to vol id) | analyzes prepared maps of other locations to show appropriate detector placement *26(g)1H,2C<br>draws map of home to scale to show smoke detector placement and home exit plan *25(g)7B, 26(g)1H,2C | describes or demonstrates what to do in unusual circumstances *44(a)11C,48(a)4I<br>organizes an obstructed drill at school or home *48(a)4J | describes basic function of two types of smoke detectors *48(c)3D<br>describes basic function of sprinklers, including residential fast response sprinklers *48(c)3D<br>surveys and maintains smoke detectors at home *48(c)3D | | lists types of building code requirements for detectors, sprinklers, exits *69-2A,4B,4D |
| describes hazards of intentional fires, especially relating to waste and loss of resources *29(f)2B | | describes alternative behaviors to peer pressure related to firesetting and smoking *44(a)11A, 48(a)1D<br>identifies arson as a crime *48(a)2L<br>writes at least five rules for using matches and lighters *44(a)11B,C | | | explains effects of business fire on community and production *69-1B,1E |
| identifies hazard of false alarms, especially relating to wasting resources *29(f)2B | prepares time line in response to fire sighting and reporting *25(g)4E, 29(g)7A<br>explains why to report smoke or suspected fire promptly *25(g)6D, 26(g)1H | describes how to discourage false alarms *44(a)11C,48(a)2L | | | |
| | | outlines and details duties of baby-sitter *44(a)11C, 48(a)4I,J | | describes general accident prevention and wellness needs of children, handicapped and senior citizens *65(a)1G,3E | describes fire and burn safety responsibilities of citizens in their roles as caregivers or providers *69-4A |
| describes role of volunteer fire department in the community *26(f)3A | describes professionals involved in emergency response and burn care *26(g)3A | | | describes at least five community health services and other resources that assist in community fire safety *65(a)3D | |
| describes impact of grass and tree fires on land forms *25(f)6E, **2.2<br>lists steps in safe procedures for burning debris and cooking on charcoal, campfire, grill *26(f)3B<br>gives examples and application of cleaning trash and brush to reduce fire hazard *26(f)3B | describes dangers of high tension wires *26(g)1H, **3.4 | lists comprehensive camping safety rules *44(a)4B | lists comprehensive rules for outdoor safety *44(b)7D<br>investigates community laws on fireworks *44(b)7D | describes fire safety precautions related to gasoline, autos, outdoor tools and discarded cigarettes *65(a)1G | |



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| | Kindergarten | First Grade | Second Grade | Third Grade | Fourth Grade |
|---|---|---|---|---|---|
| * Essential Elements<br>Current essential elements as defined by Chapter 75 of the Texas Education Code that apply. The student shall be provided opportunities to: | §75.25 (a) 1A. use comparators: ... heavy/old.<br>§75.25 (a) 3A. classify objects by comparing similarities and differences.<br>§75.25 (a) 3C. arrange events in sequential order.<br>§75.26 (a) 1C. recognize hazards in the environment and acquire knowledge and skills needed to avoid injuries and to prevent accidents.<br>§75.25 (a) 1D. recognize negative effects of ... tobacco.<br>§75.29 (a) 1A. identify examples of right and wrong behavior.<br>§75.29 (a) 1B. discuss ways people can help each other.<br>§75.29 (a) 1D. practice rules of safety.<br>§75.29 (a) 1E. recognize safety symbols. | §75.25 (b) 3C. observe properties of objects, organisms, and events in the environment.<br>§75.25 (b) 3B. classify objects, organisms, actions, and events from the environment according to similarities and differences.<br>§75.25 (b) 4B. describe objects, organisms, and events from the environment.<br>§75.25 (b) 4D. record data and interpret the arrangement of data on picture graphs, bar graphs, and maps.<br>§75.25 (b) 3B. compare temperature of objects.<br>§75.25 (b) 6F. draw conclusions from observed data.<br>§75.25 (b) 7B. relate objects and activities to daily life.<br>§75.25 (b) 7C. relate science to careers.<br>§75.26 (b) 1C. recognize hazards in the environment, and acquire knowledge and skills needed to avoid injury and to prevent accidents.<br>§75.26 (b) 1D. recognize negative effects of tobacco.<br>§75.26 (b) 2B. recognize the health of the family depends upon contributions of each of its members.<br>§75.26 (b) 3. recognize interdependence of people and the environment, and recognize personal responsibility for protecting the environment.<br>§75.29 (b) 4B. identify school and community rules (laws).<br>§75.29 (b) 4C identify authority figures in ... community.<br>§75.29 (b) 5A. know geographical location of home in relation to school and community. | §75.25 (c) 3B. classify matter and forces, organisms, actions, and events from the environment according to similarities and differences.<br>§75.25 (c) 4B. describe objects, organisms, and events from the environment.<br>§75.25 (c) 6A. predict the outcomes of actions based on experience or data.<br>§75.25(c)7B. relate objects, science principles, and activities to daily life.<br>§75.26 (c) 1C. recognize hazards in the environment, and acquire knowledge and skills needed to avoid injury and to prevent accidents.<br>§75.26 (c) 2B. recognize the health of the family depends upon contributions of each of its members.<br>§75.26 (c) 3A. recognize interdependence of people and the environment, and recognize personal responsibility for protecting the environment.<br>§75.29 (c) 1C. volunteer for leadership.<br>§75.29 (c) 4A. identify some government services in the community.<br>§75.29 (c) 6B. describe family traditions and customs. | §75. 25 (d) 6A. Use observations to form definitions of objects, actions, organisms, events, and processes.<br>§75. 26 (d) 2B. recognize the health of the family depends upon contributions of each of its members.<br>§75.25 (d) 6B. state generalizations about similarities and differences among objects, organisms, and events.<br>§75.25 (d) 7A. compare and contrast objects, organisms, and events.<br>§75.25 (d) 7B. relate classroom objects, science principles, and activities to daily life.<br>§75.25(d) 3B. classify matter and forces, organisms, action, and events from the environment according to similarities and differences.<br>§75.26 (d) 1D. practice general emergency procedures.<br>§75.26 (d) 1E. recognize hazards in the environment, and acquire knowledge and skills needed to avoid injury and to prevent accidents.<br>§75.29 (d) 2A. describe ways a community satisfies needs for food, clothing and shelter.<br>§75.29 (d) 6B. describe how individuals and families change over time. | §75. 25 (e) 3B. recognize interdependence of people and the environment, and recognize personal responsibility for protecting the environment.<br>§75. 29 (e) 1A. accept the responsibilities of membership in various groups.<br>§75.25 (e) 4B. describe objects, organisms, and events from the environment.<br>§75.25 (e) 6A. predict the outcomes of actions based on experience or data.<br>§75.25 (e) 7B. relate classroom objects, science principles, and activities to daily life.<br>§75.25 (e) 8B. state relationships among objects, organisms, and events using operational definitions.<br>§75.26 (e) 1F. practice general emergency procedures.<br>§75.26 (e) 1G. recognize hazards in the environment, and acquire knowledge and skills needed to avoid injury and to prevent accidents.<br>§75.26 (e) 2C. recognize the health of the family depends upon contributions of each of its members.<br>§75.26 (e) 3A. recognize scope of services provided by community health agencies.<br>§75.29 (e) 1C. explain how groups influence individual behavior. |
| ** Science Content<br>content from the sciences that shall be emphasized at the grade level shall include: | | Life Science<br>1.1 basic needs and life processes<br>1.6 ecology ... interdependence of living things.<br>1.7 application of life science to careers and everyday life. | Earth Science<br>2.9 human responsibility regarding earth science phenomena ... natural resources. | Physical Science<br>3.1 energy ... kinds of energy ... forms of energy ... sources of energy.<br>3.5 phases of matter: solids, liquid and gas.<br>3.6 structure of matter ... families of elements: metals and nonmetals.... | Life Sciences<br>1.4 structure and function ... the human body.<br>1.6 ecology ... interdependence of living things.<br>1.7 application of life science to careers and everyday life.<br>1.8 human responsibility regarding life science phenomena. |

05/27/93

| Fifth Grade | Sixth Grade | Seventh Grade | Eighth Grade | Health | Economics |
|---|---|---|---|---|---|
| §75.25 (f) 2D. observe phenomena resulting from the life, earth, and physical sciences<br>§75.25 (f) 6A. predict the outcomes of actions based on experience or data<br>§75.25 (f) 6E. draw conclusions from observed data.<br>§75.25 (f) 7B. relate classroom objects, science principles, and activities to daily life.<br>§75.26 (f) 1G. identify ways to care for the principal body systems<br>§75.26 (f) 1H. recognize hazards in the environment, and acquire knowledge and skills needed to avoid injury and to prevent accidents<br>§75.26 (f) 2A. recognize benefits and limitations of advertising as it relates to selection of health ... products<br>§75.26 (f) 2D. recognize need for first aid<br>§75.26 (f) 3A. identify locally available voluntary health agencies<br>§75.26 (f) 3B. recognize interdependence of people and the environment, and recognize personal responsibility for protecting the environment<br>§75.29 (f) 2B. explain why conservation of economic resources is important | §75.25 (g) 2D. observe phenomena and apply knowledge of theories, facts, and concepts from the life, earth, and physical sciences<br>§75.25 (g) 4B. name and describe objects, organisms, and events from the environment<br>§75.25 (g) 4E. record data and interpret the arrangement of data on graphs, tables, and other visuals<br>§75.25 (g) 6D. form and state generalizations about similarities and differences among observed objects, organisms, events, and phenomena<br>§75.25 (g) 7B. relate classroom objects, science principles and activities to daily life<br>§75.26 (g) 1F. identify factors, including peer pressure, that contribute to ... tobacco ... abuse and methods of prevention<br>§75.26 (g) 1H. recognize hazards in the environment, and acquire knowledge and skills needed to avoid injury and to prevent accidents<br>§75.26 (g) 2C. recognize the health of the family depends upon contributions of each of its members<br>§75.26 (g) 2D. identify basic emergency treatment<br>§75.26 (g) 3A. relate the system of health services provided by government to the health needs of people<br>§75.29 (g) 7A. make and interpret time lines | §75. 48 (a) 1D. recognize that individuals must accept the consequences of their decisions<br>§75.44 (a) 11B. investigate the range of effects on personal health and safety from the use of ... tobacco<br>§75.44 (a) 11C. discriminate between responsible and irresponsible choices that affect personal health<br>§75.44 (a) 4B. describe ecological relationships in the environment<br>§75.44(a) 11A. determine alternate courses of action when one is being pressured concerning use of ... tobacco<br>§75.48 (a) 2L. support the rules and laws of one's school, community, state and nation<br>§75.48 (a) 4I. develop criteria for making judgments<br>§75.48 (a) 4J. use problem-solving skills | §75.44 (b) 3. classify objects or events according to similarities and differences<br>§75.44 (b) 7D. contrast human activities that affect the natural environment<br>§75.48 (c) 3D. analyze the impact of technological innovations on business, industry and agriculture (in U.S.) | §75.65 (a) 1A. understand the care of body systems and their functions<br>§75.65 (a) 1B. relate personal behavior to wellness<br>§75.65 (a) 1D. demonstrate responsible behavior concerning ... tobacco<br>§75.65 (a) 1E. exhibit skills in accident prevention, injury control and emergency action<br>§75.65 (a) 1G. identify components of comprehensive accident prevention programs<br>§75.65 (a) 2A. analyze messages of advertising for health resources and activities<br>§75.65 (a) 3D. describe the wide range of resources designed to protect and promote well-being of people<br>§75.65 (a) 3E. investigate current health issues | §75.69 1B. analyze how supply and demand affect prices<br>§75.69 1E. analyze the roles of economic incentives, voluntary exchange, private property rights and competition<br>§75.69 1G. examine the roles of labor and consumers in the American free enterprise system<br>§75.69 2A. understand how the government both protects and regulates the operations of the market system<br>§75.69 4A. describe the rights and responsibilities of consumers<br>§75.69 4B. identify ... agencies that provide consumer protection<br>§75.69 4D. define basic consumer terminology in the areas of credit, insurance, budgeting and home ownership or leasing |
| Earth Science<br>2.2 geology ... agents of weathering, erosion and deposition.<br>2.6 meteorology ... effects of weather change and severe weather types ... effects of weather on human activities. | Physical Science<br>3.1 energy ... kinds of energy ... sources of energy ... transformation of energy from one form to another.<br>3.4 electricity and magnetism: charges, circuits, properties, electromagnetism, etc. | | | | |

# Introduction

# Introduction

**Why teach fire and burn prevention?**

Each year during the past decade, about 300 Texans have died in fires. The Texas Commission on Fire Protection is committed to reducing this alarming statistic. Analysis of fire statistics shows that the vast majority of fires — and the resulting fire deaths — could have been prevented. Regretfully, most people do not know or practice even simple actions that can prevent fires and burns.

The Texas Commission on Fire Protection believes the key to reducing fires and fire deaths is education. Fire safety education has traditionally been concentrated in elementary school observances of Fire Prevention Week. While these observances can produce effective results, thoughtful analysis of the fire problem and fire safety educational programs shows that a more comprehensive, age-appropriate approach to fire safety education can multiply its benefits.

Recognizing the limits of classroom instruction time, the Texas Commission on Fire Protection has examined the Texas essential elements of instruction to determine the most appropriate topics with which to integrate fire prevention and fire safety. Teachers from across the state have provided feedback on topics appropriate for each grade level, kindergarten through high school.

The result of this extensive research is "Fire Safety for Texans," a series of curriculum guides teaching fire and burn prevention. Each grade-level program has been coordinated with essential elements in that grade and with the unique specific fire safety needs of that age group. The lesson plans have been field tested in classrooms across the state. On average, students who have been taught using these materials score 26 percent higher than students in control groups.

As you use this guide, you and teachers in other grade levels will be part of a continuum of fire safety education spanning all grades. The Texas Commission on Fire Protection believes this continuum will help created a generation of Texans who will be fire-safety aware. In turn, all Texans can benefit from a decrease in the number of needless fire deaths and an increase in safer homes and worksites — a benefit we all deserve.

**This Booklet**

This booklet, "Fire Safety Power," is specifically designed for sixth-grade students. The following sections give specific information on the essential elements applicable to fire and burn prevention and on the age-specific needs of sixth-grade students related to fires and burns. You will also find additional information on the format and materials found in this booklet.

This booklet has three sections:

- **Lesson Plans.** This section includes all steps in the lesson cycle.
- **Teacher Materials.** This section includes all teaching aids and tests.
- **Student Materials — Duplicating Masters.** This section includes master copies of materials to be used by students.

**General Objectives:** To develop a comprehensive understanding of fire physics

To evaluate electrical hazards and how to respond to those hazards

To continue study of first aid for burns

**Essential Elements:** The student will be provided opportunities to:

§75.25 (g) 2D. observe phenomena and apply knowledge of theories, facts, and concepts from the life, earth, and physical sciences.

§75.25 (g) 4B. name and describe objects, organisms, and events from the environment.

§75.25 (g) 4E. record data and interpret the arrangement of data on graphs, tables, and other visuals.

§75.25 (g) 6D. form and state generalizations about similarities and differences among observed objects, organisms, events, and phenomena.

§75.25 (g) 7B. relate classroom objects, science principles and activities to daily life.

§75.26 (g) 1F. identify factors, including peer pressure, that contribute to ... tobacco ... abuse and methods of prevention.

§75.26 (g) 1H. recognize hazards in the environment, and acquire knowledge and skills needed to avoid injury and to prevent accidents.

§75.26 (g) 2C. recognize the health of the family depends upon contributions of each of its members.

§75.26 (g) 2D. identify basic emergency treatment.

§75.26 (g) 3A. relate the system of health services provided by government to the health needs of people.

§75.29 (g) 7A. make and interpret time lines.

** **Science Content:** Content from the sciences that shall be emphasized at the grade level shall include:

**Physical Science**

3.1 energy ... kinds of energy ... sources of energy ... transformation of energy from one form to another.

3.4 electricity and magnetism: charges, circuits, properties, electromagnetism, etc.

## Background: Age Profile

Stage of industry vs. inferiority, which means the child needs to stay constructively busy. Because many differences in abilities are becoming more evident, comparisons among children should be avoided.

Areas of development include neuromuscular and social. The child is developing many new physical skills, both gross and fine motor skills. He is making a social move from the home into peer groups and school. He is developing his own self-attitudes and seeks significant human relationships.

Operating under the morality of cooperation, the child sees rules as mutual agreements made by those affected and involved in the situation. She tends to obey rules out of respect. The child can understand causes and consequences of actions.

The child is capable of concrete operations, which means he can solve a variety of problems using concrete objects, and may be capable of formal operations, in which concrete objects are no longer needed for problem solving. He must be active in the instructional process, and activities and materials must be relevant to the child's life or environment. Instruction will be more effective if it involves both the affective and cognitive domains.

The sixth-grader is interested in social, occupational and civic matters. She is becoming able to move from the simple to complex, concrete to abstract, undifferentiated to differentiated, discrete to organized.

**Fire And Burn Hazards**

Curiosity about fires — playing with matches and lighters, candles, fireplace, heaters, other locations where the child can observe a flame; overconfidence in dealing with fires.

Scalds — cooking; tap water; hot foods, especially heated sweet foods.

Appliances — cooking at stoves or with microwave ovens, especially unsupervised; overconfidence in using appliances, such as irons, toasters, etc.

Clothing ignition — playing with matches; flammable clothing and costumes; walking or sleeping too close to heater or other open flame; knowing how to reduce injury.

Outdoor hazards — campfires and barbecues; mini-bikes and lawn mowers; fireworks; high-tension wires.

Other — flammable liquids; fires caused by parents' smoking; injury from smoke and fire gases; knowing how to escape from fire.

**Teacher's Note On Materials:** Illustrations and activity sheets in this booklet are intended to serve as masters. Photocopy, then use the photocopy as directed.

**Pre-Test and Post-Test:** Administer the pre-test prior to the first lesson and the post-test after the final lesson.

**Teacher's Note on Closure Activities:** Some activities included in the closure phase of the lesson cycle may be effectively used in the next lesson's focus activity.

**Key To Icons:** The following icons can be used to easily identify activities in the lesson plans:

Lesson objectives

Focus and closure

Creative group activity, including role playing

Lecture

Group problem-solving activity

Answering questions

Guest presenter

Investigation or research

Creative writing activity

Cut-and-paste activity

Group discussion

Drawing, artwork or illustration

# Lesson Plans

LESSON ONE:

# Physics Of Fire, Almost Like Magic

**Goal:** *To examine the complete fire tetrahedron and to apply knowledge of flammables and combustibles to product safety*

**Objectives:** The student will:

- describe fourth element of fire, uninhibited chemical reactions *25(g)4B, **3.1
- lists types of heat and fuel to define classes of fire *25(g)2D, **3.1
- describes three types of fire extinguishers *26(g)1H

**Materials:** Pre-tests (p. 15); fire tetrahedron, assembled as illustrated (p. 16); "The Basics Of Fire and Fire Safety," reproduced on overhead transparency or poster P. 17); "The ABCs of Fire Extinguishers" classification activity (p. 33) "Overpower The Fire" independent practice activity (p. 34); answer keys (p. 27).

**Focus: Administer pre-test.**

Present tetrahedron. Have students describe how it is different from fire triangle usually presented (four faces, fourth element).

Introduce unit on fire safety by telling students that although fire sometimes seem magical, technical advances and greater knowledge of fire have given people greater power in controlling and putting out fires. Present general objectives:

To develop a comprehensive understanding of fire physics

To evaluate electrical hazards and how to respond to those hazards

To continue study of first aid for burns

Outline lesson objectives (paragraph above).

**Presentation Of Content:** Display "The Basics Of Fire and Fire Safety" on poster or overhead projector. Have students read the definition of fire and describe the differences between an object before it is burned and after it has been burned. Discuss the four elements of fire and basic principles of preventing or putting out a fire.

Direct student attention to "Types of Fires." Have students read and discuss the three types of fuel, encouraging them to use Type A, B or C to identify the three fuel types. Have students add other items to each list.

Tell students that knowing the type of fuel is essential in knowing how to put out the fire. Have students discuss ways they would put out a Type A fire. (Spraying water on the fire, rolling to put out a clothing fire.) Ask how they would put out a Type B or C fire. (They will probably be able to name putting a lid on a pan to put out a cooking grease fire or turning off the electricity for an appliance fire, but will not be able to identify others except using fire extinguishers.) Tell students that fire extinguishers using chemicals have been developed to safely and effectively fight fires.

**Guided Practice:** Distribute "The ABCs of Fire Extinguishers" classification activity. Point out the fuel types chart at the top and the illustration of the fire extinguisher. Tell students that all fire extinguishers are labeled with one or more letters, A, B, C and/or D. Read note about Type D fires. Also note the shapes around each letter, which is another identifying aid. Examine any fire extinguishers in the room.

Point out that the most common types of extinguishers available for home use are Type A, Type BC (effective for both Types B and C) and Type ABC (effective for all three). Have students hypothesize on what each type might contain. (Type A only is usually water; Type BC, carbon dioxide or dry chemical to smother the fire; Type ABC, another dry chemical to smother and cool the fire.)

Have students read each item in the chart, then circle the type of extinguisher needed and write whether the fire was probably cooled or smothered. Reinforce awareness that two or more types of fuel are commonly involved in one fire.

**Independent Practice:** Distribute "Overpower The Fire" activity. Have students identify each item and answer the questions. Encourage them to recognize that an ABC extinguisher has a variety of applications.

**Reteaching:** Copy the pattern for the fire tetrahedron and have students construct their own.

Have students make lists of sources of all elements and attach to the appropriate sides. Note that uninhibited chemical reactions will have no additional labels.

**Enrichment:** Have students research the fourth type of fuel — flammable metals. Have them prepare reports or illustrations that show how metal fires differ from other types of fires.

**Closure:** Review "Overpower The Fire" activity, if appropriate. Select objects in the classroom and have students tell the type of fire and type of extinguisher to use. Note any items with flammable liquid labels.

Introduce next lesson by telling students that their study of "Fire Safety Power" will focus on the power of electricity.

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**LESSON TWO:**

# Electricity

**Goal:** *To examine the relative risks of electrical appliances, including high-tension wires, and to relate the risks of electrical heating to other alternative heating methods*

**Objectives:** The student will:

- describe why electricity and electrical appliances are fire and burn hazards, relating amount of energy used by various appliances to their risk *25(g)6D, **3.4
- describe dangers of high tension wires *26(g)1H, **3.4

**Materials:** "Electrical Objects," transferred on poster or overhead transparency (p. 18); "Electricity Is ..." background information, transferred on poster or overhead transparency (p. 19); "Heat Equals Danger" analysis activity sheet (p. 35); "Higher Heat" analysis and classification activity sheet (p. 36); answer keys (p. 27-28). Option: electric light, electric heater and electric clock, other appliances if desired; display UNPLUGGED with cords securely tied.

**Focus:** Review Lesson One concepts: the fourth element of fire; three classes of fire and fire extinguishers. Explain that this lesson will focus on the third class of fires — electrical fires.

Display illustrations of electrical objects on poster or overhead (or display light, heater and clock UNPLUGGED).

Have students describe how they are similar. (All use electricity)

Tell students that this lesson will focus on electrical power and its relation to fire safety. Outline lesson objectives (paragraph above).

**Presentation Of Content:** Display "Electricity Is..." on poster or overhead projector. Read definition of electricity. Review basic electricity knowledge, including the fact that the flow of electrons creates power or energy that causes electrical and electronic appliances to operate. (NOTE: This information relates to science instruction on electricity.)

Discuss table titled "Electricity is used to:" Have students list additional examples of each use of electricity.

NOTE: This lesson does not address the issues of heat created by electronic "switching" devices such as computers and semiconductors. More traditional appliances, such as those listed, are much more common fire hazards.

Discuss table titled "How does this relate to fire safety?" If using sample appliances, read the wattages listed on the light bulb, heater and clock.

**Guided Practice:** Distribute "Heat Equals Danger" analysis activity sheet, noting the background information. Divide class into groups of three or four students. Have groups read each item in the list and select the correct words. Encourage students to refer to the background information if necessary.

**Independent Practice:** Direct student attention to "Higher Heat" analysis and classification activity. Have students compare the two items and answer the questions. Point out the IMPORTANT note at the bottom of the page.

**Reteaching:** Have students research the wattages of home appliances. Have them prepare a list of the appliances and wattages and arrange from lowest to highest wattage. Relate the listing to relative fire risk.

NOTE: Tell students to conduct home research with help from parents or other adults.

**Enrichment:** Have students research the wattages of home appliances. Have them arrange the items in

pairs and conduct an analysis similar to the "Higher Heat" activity.

**Closure:** Display the illustrations of electrical objects using in the Focus activity. Briefly review the purpose of high-tension wires. Have students tell which of the three remaining appliances uses the most and least amounts of electricity, then tell which one is most likely to start a fire. (Most electricity is used by heater, least by clock. Heater is most likely to start a fire.) Review "Higher Heat" activity, if appropriate.

Introduce the next lesson by telling students that their next lesson on "Fire Safety Power" will focus on one of the most powerful tools in being prepared for a fire.

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**LESSON THREE:**

# Home Safety

**Goal:** *To apply knowledge by planning for safety at home*

**Objectives:** The student will:

- draw map of home to scale to show smoke detector placement and home exit plan *25(g)7B, 26(g)1H,2C
- analyze prepared maps of other locations to show appropriate detector placement *26(g)1H,2C
- develop holiday checklist that applies fire safety rules *25(g)7B, 26(g)1H,2C

**Materials:** Student desks, tables and/or masking tape to make a floor plan outline; "Smoke Alarm" and "Smoke" role-playing labels (p. 20); "Are These Homes Prepared?" analysis activity sheets (p. 37); "A Powerful Plan For Home Safety" planning and research activity sheets (p. 38); answer keys (p. 28). Reteaching: "Are These Homes Prepared?" activity sheet (p. 38) with smoke alarm placements deleted.

**Focus:** Briefly review types of electrical hazards. Emphasize that preventing a fire is the most desirable way to avoid fire damage; however, if a fire does occur, every home should be prepared by having a smoke alarm and an emergency exit plan.

Ask for three ideas on the purpose of a smoke alarm and emergency exit plan. Record and retain for Closure activity. Outline lesson objectives (paragraph above).

**Presentation Of Content:** Have student desks and tables arranged in an outline of a home floor plan, or use masking tape to mark an outline of a home floor plan. SUGGESTION: Use the one-bedroom apartment floor plan from "Are These Homes Prepared?" sheet as a guide. Additional bedrooms might be added.

Have students sit on floor in groups in "rooms" of house. Give each group three minutes to make a hypothesis (based on prior knowledge and analysis of smoke movement and floor plan) on where a smoke alarm should be placed. If necessary, remind students that the largest number of fires that cause deaths occur at night when people are sleeping. They can be allowed to have more than one alarm.

When groups have their hypotheses, assign persons from each group as "Smoke Alarm(s)" and "Smoke" and distribute role-playing labels. Use one group to demonstrate a "test" of their hypothesis using the following steps.

1. Position "Smoke Alarm(s)" as the group suggested.
2. Have "Smoke" act out movement toward people sleeping in bedroom(s) from one or more of the following:
   - A fire that starts from a careless smoker sleeping on the sofa.
   - A fire that starts from a heater in a bedroom.
   - A fire that starts from unattended cooking in the kitchen.
3. Have "Smoke Alarm(s)" make warning sound when "Smoke" tries to pass.
4. Help students determine if their placement of smoke alarm(s) was the best possible.
5. Discuss what would happen if it were a two story building.

Using student suggestions, write a list of criteria for placing smoke alarms. Be sure the list includes:

- At least one alarm outside each sleeping area.
- At least one alarm on each level or story.
- Do not place in kitchen or high-humidity area (bath, sauna) to prevent nuisance alarms and damage to alarm..
- Optional: Place an additional alarm in each bedroom or any room in which someone might sleep.

- Optional: Interconnect all alarms so that if one goes off, all alarms sound. (Point out that these are usually part of a whole-house security system.)

Then have each group review their original hypotheses and test their theories using "Smoke Alarm(s)" and "Smoke" role playing.

**Guided Practice:** Distribute "Are These Homes Prepared?" Have students examine each drawing and determine if the alarms are appropriately placed. Have them put an X on each misplaced alarm and draw in needed locations. Have them draw in two emergency exits from each room.

**Independent Practice:** Distribute "A Powerful Plan For Home Safety." instruct students to draw maps of their homes to scale using the provided grid, marking locations of smoke alarms and two emergency routes from each room. NOTE: Distribute two pages to students who live in two-story homes.

Have them study the master holiday checklist and select five holiday safety rules that address hazards they feel they should address in their home.

**Reteaching:** Reproduce the prepared maps from "Are These Homes Prepared?" without the smoke alarm locations. Have students mark where they think detectors should be placed for minimum and maximum coverage. Have them explain their choices.

**Enrichment:** Have students prepare letters to their parents and/or family members about the value of smoke alarms and planned emergency exit plans.

Have students share their checklists on holiday safety with family members by preparing illustrations or posters.

**Closure:** Display maps of home smoke alarm locations and home exit plans. Have students share what they discovered and how their families responded to this activity. Compare their three ideas from the Focus activity to what they learned about smoke alarms.

Introduce next lesson by telling students that they will look more closely at why learning about a fire as quickly as possible (which smoke alarms help do) is so important.

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**LESSON FOUR:**

# Fire Response

**Goal:** *To examine various aspects of responding to fire and burns*

**Objectives:** The student will:

- prepares time line in response to fire sighting and reporting *25(g)4E, 29(g)7A
- explains why to report smoke or suspected fire promptly *25(g)6D, 26(g)1H
- describe professionals involved in emergency response and burn care *26(g)3A

**Materials:** "Time Line Of Class" and "Time Line Overlay" illustrations (p. 21-22), transferred to overhead transparency; "Seconds Count" overhead transparencies (p. 23-24); "Seconds Count" activity sheets (p. 39-40); "A Time Line For Safety" problem-solving activity (p. 41); answer keys (p. 28-29).

**Focus:** Display "Time Line of Class" illustration. Ask students if a fire starts in a shorter or longer time. Add "Fire Time Line Overlay." Have students share their reaction to the differences.

Tell students that reacting quickly and appropriately saves lives in a fire. Emphasize that planning and practicing can make it easier to act quickly in an emergency. Add that fire departments and medical professionals have also planned for helping people in the community when fires or burns occur. Outline lesson objectives (paragraph above).

**Presentation Of Content:** Using "Fire Time Line Overlay," discuss the kinds of actions that are required in responding to a fire. (Someone becomes aware of the fire, someone notifies the fire department, the fire department responds by coming to the fire, fire fighters put out the fire.) Discuss what would happen if any of the actions is not done or is done too slowly. (The home cannot be saved, anyone who might be hurt cannot be saved, the fire could spread to other houses; accept other reasonable answers.)

Ask students if planning what to do in a fire emergency would make the reactions faster or slower. (Faster) Have students explain why. (In an emergency, people tend to think irrationally, not logically. Planning ahead helps you choose a correct action while you can think properly. Students may find it helpful to compare planning for a fire emergency to studying for a test or rehearsing for a play.)

Have students describe what might have been done to create a different outcome in the time line. (Not smoking, putting out the cigarette with water then putting it in a trash can; having a smoke alarm that might warn of the fire before it grows too large; checking ash trays before leaving house; using larger ash trays on table instead of couch arm.) Emphasize that most fires in the home can be prevented by "planning to be safe."

**Guided Practice:** Display "Seconds Count" illustration and distribute "Seconds Count" problem-solving activity. Explain that the various time lines show several situations concerning fire. Review each time line and discuss the people involved and the actions that each person did.

Direct student attention to "Professionals At Work." Guide students in matching the fire service and hospital professionals to the job descriptions. Discuss how each person might be specially trained and prepared for their jobs.

**Independent Practice:** Distribute "A Time Line For Safety" problem-solving activity sheet. Have students prepare the time line as directed, then list the professionals in their time lines.

**Reteaching:** Review Time Lines 1 and 2 from "Second Count." Have students act out the scenarios in real time to develop a sense of the passage of time. Discuss how the time required to carry out an action is shortened by being prepared and practicing. Compare to knowing a friend's telephone to having to look up the telephone number in the directory.

**Enrichment:** Have students prepare time lines of their own creation. Include other variables, such as a fire in a store, fire involving a senior citizen or handicapped person, fire in a school that has fire drills compared to a school that does not conduct fire drills. Encourage them to explore variables in the way people might respond in each situation.

**Closure:** Ask students to stand, then sit down when they think that one minute has passed. Stop the demonstration a few seconds after the one-minute mark. Add that one minute is all it takes for a fire to consume a room. Ask students to share their opinions on why fast response for a fire is necessary.

Review the various jobs of the fire service and emergency medical personnel. Emphasize that the students' roles in having a safe home environment is as important as any of those jobs.

Introduce next lesson by telling students that the final lesson will focus on the various types of burns that might be seen by the medical professionals discussed in this lesson.

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**LESSON FIVE:**

# Burn Response

**Goal:** *To examine various aspects of responding to fire and burns*

**Objectives:** The student will:

- classify six types of burns by causes (contact, UV, chemical, etc.) *26(g)2D
- describe special first aid actions for burns other than contact burns *26(g)2D

**Materials:** "Burns: Causes and Treatment" overhead transparency (p. 25); "A Guide To Burns" activity sheets (p. 42); "Warning: Burn Danger" activity sheets (p. 43); post-tests (p. 26); answer keys (p. 26-28).

**Focus:** Review main ideas of the previous lesson, reinforcing the importance of responding quickly to fire and burn emergencies.

*Teacher:* "Fast responses to burn injuries are very important. Most of us know how to "cool a burn," which works well for most burns. But did you know that there are some types of burns that require other kinds of response? This lesson will give you information to help respond the major types of burns."

Outline lesson objectives (paragraph above).

**Presentation Of Content:** Display "Burns: Causes and Treatment" overhead transparency. Have

students read and discuss the three major causes of burns — thermal, chemical and electrical.

Read and discuss the different types of burn treatment. Emphasize that different types of burn require different types of initial treatment.

**Guided Practice:** Distribute "A Guide To Burns." Divide students into small groups. In groups, have students read each item and discuss the type and proper care of each.

Discuss when it would be appropriate to call for emergency medical service (9-1-1 in most Texas communities).

**Independent Practice:** Distribute "Warning: Burn Danger" activity sheets. Point out that proper emergency treatment of burns depends on being prepared. Have students prepare warning labels or signs that could be placed on burn hazards. Instruct students to check the item or product, then prepare the label or sign.

**Reteaching:** Invite an emergency medical technician to present information on primary burn care.

**Enrichment:** Have students research the Shriners Burn Institute or the critical burn care hospital nearest to your community.

Invite a burn-care professional to visit the class. Encourage the guest to discuss burn prevention. (Note: Advise the guest on whether you wish to see photographs of severe burns. The students may be disturbed by some photographs.)

**Closure:** Have students present the labels and signs prepared in the Independent Practice activity. Share reactions to their work, and ask students to comment on those that might influence them to be more careful with burn hazards.

Ask students to tell what more impressed them during the study of "Fire Safety Power." Review major points on fire tetrahedron, electricity safety and types of fires.

**Administer post-test.**

20

# Teacher Supplemental Materials

Name _____

**SIXTH GRADE: Fire Safety Power** **PRE-TEST**

Read each question, then write the best answer.

1. Fires are classified by letters, A, B and C. Tell the correct type of fire by writing the letter A, B or C in the blank.

_____ electrical appliances or wiring

_____ wood and paper

_____ flammable liquids, such as gasoline or cooking oil

2. Why should you report a fire immediately?

_____

3. The three general types of fire extinguishers are:

_____, _____ and _____.

4. You are not sure if a bottle of cleaner is a flammable liquid that might catch fire. How can you easily tell if the cleaner is a flammable liquid?

_____

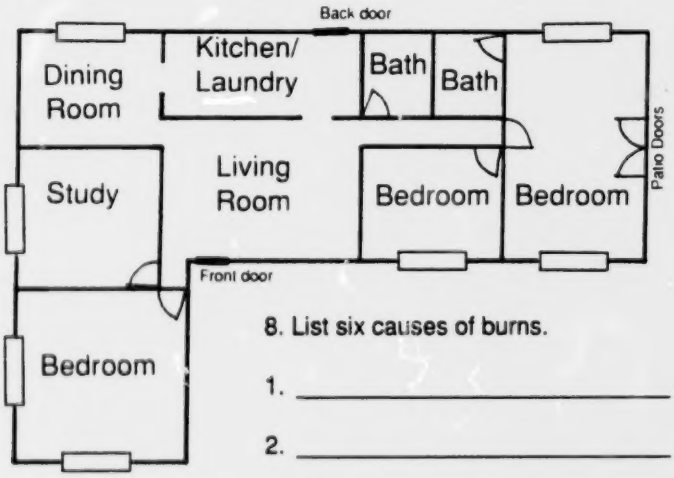
5. Four elements are needed to create a fire and keep it burning. Three of these are heat, oxygen and fuel. The fourth is:

_____.

6. List THREE professional jobs that are involved in responding to fire emergencies and providing care for burns:

1. _____
2. _____
3. _____

6. On the map, draw a circle in each place that a smoke alarm should be located. Then draw lines to show a fire exit plan.




7. List two guidelines for placing smoke alarms.

1. _____

_____

2. _____

_____

8. List six causes of burns.

1. _____ 4. _____

2. _____ 5. _____

3. _____ 6. _____

**Circle True or False.**

10. High-tension wires (outdoor power lines) are more dangerous than electric outlets in your home. **True False**

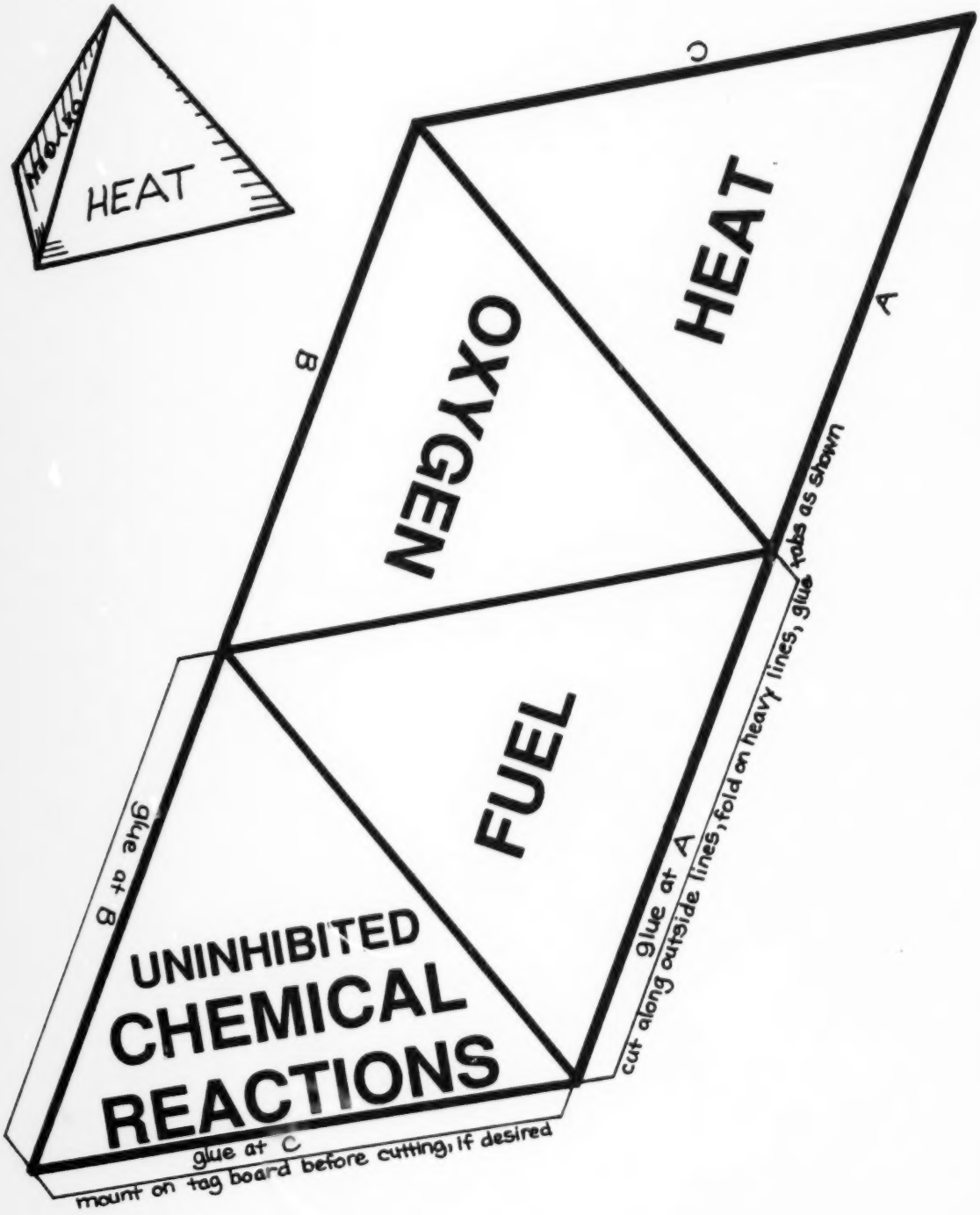
12. The chance of an electrical appliance catching fire is related to the amount of electricity that the appliance uses. **True False**

13. All burns are generally the same, so there is no difference in how you treat different burns. **True False**

Teacher: Use with Lesson One, Page 7. Duplicate for student use.

## Fire Tetrahedron

Model for illustration



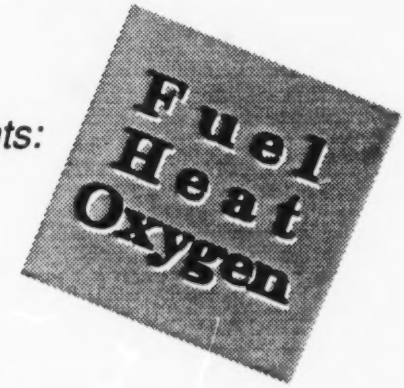

Teacher: Use with Lesson One, Page 7. Copy and assemble as shown. Mount on tagboard and color before assembling, if desired.

## The Basics Of Fire and Fire Safety

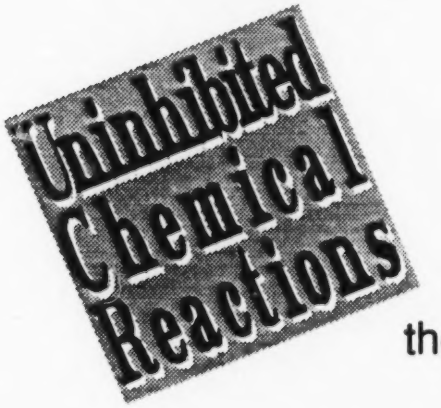
Background Information

A chemical process that converts one product (the fuel) to other products (including gases that contain carbon and hydrogen) in the presence of oxygen and heat.

*We usually say fire has three elements:*




*However, to start the process of combustion — and to keep the fire going — a fourth element is needed. Fire experts call this fourth element:*




*This means that nothing is being done to stop the interaction of the fuel, heat and oxygen that is producing the fire.*

Do something to **inhibit**, or stop, the interaction of fuel, heat and oxygen, and the fire is **stopped**.

**What will inhibit the interaction of fuel, heat and oxygen?**

**Taking away the heat**

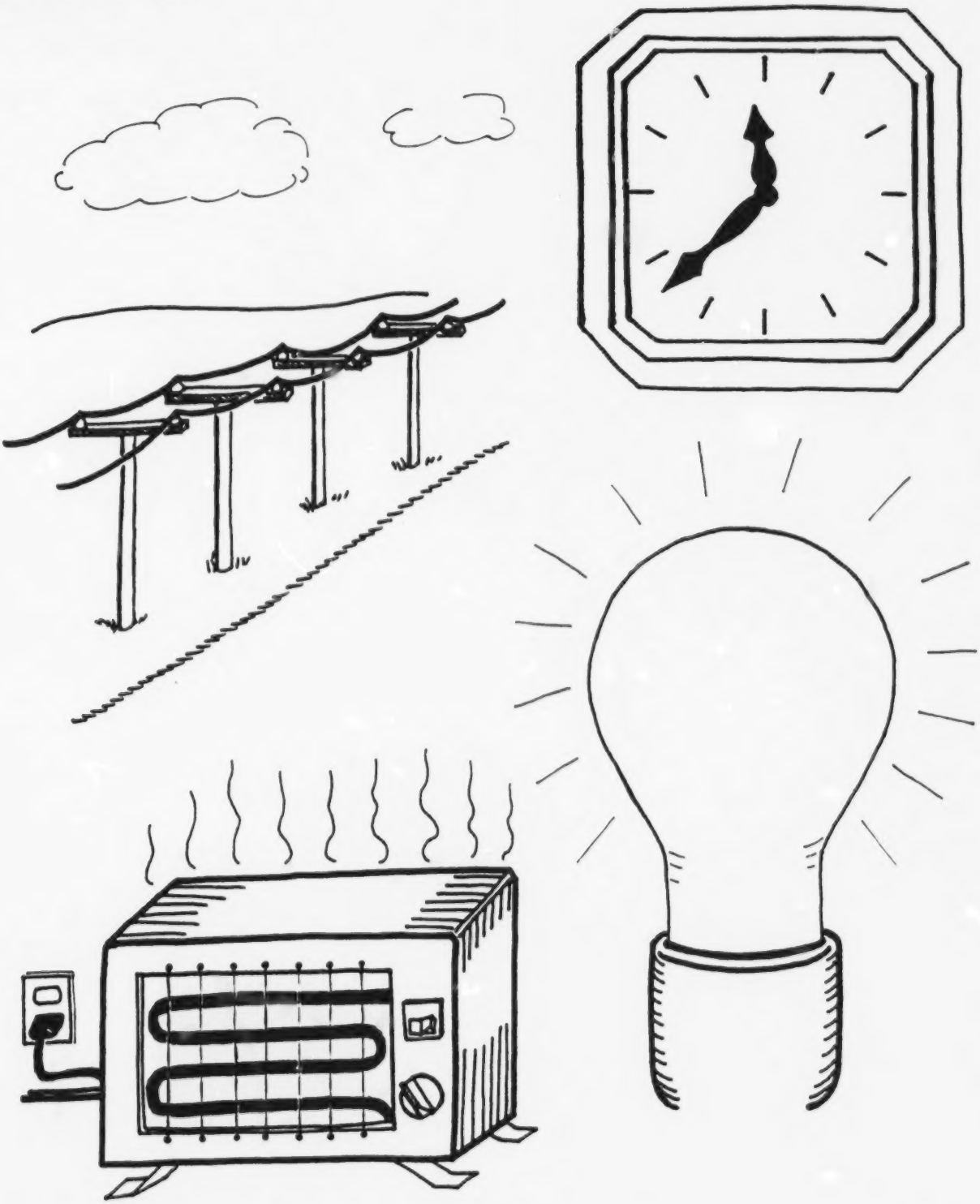
*Example:* cooling with water

**Taking away the oxygen**

*Example:* smothering the grease fire in a cooking pan by covering with a lid.

Teacher: Use with Lesson One, Page 7. Copy on poster or overhead transparency.

## Electrical Objects



Teacher: Use with Lesson Two, Page 8. Transfer to poster or overhead transparency.

## Electricity Is ...
Background Information

**Electricity** is the flow of electrons through simple materials and devices.

- The flow of electrons creates **POWER** or **ENERGY** that causes electric appliances to operate.
- The flow of electrons also creates ***HEAT.***

## Electricity is used to:

**Produce heat** — toaster, heater, stove, dryer

**Produce light** — light bulb, television, video display terminal (VDT)

**Turn motors** — clock, fan, timer, washing machine

**Turn switches on and off** — computers, calculators

## *How does this relate to fire safety?*

**If an electrical appliance**

produces more ***HEAT*** OR

produces might **LIGHT** OR

turns a motor **FASTER**,

the appliance uses **more electricity**

and is **more likely to cause a fire**

**HINT:** The wattage of an appliance is one indicator of how much electricity the appliance uses. The higher the number, the more electricity it uses.

Teacher: Use with Lesson Two, Page 8. Transfer to poster or overhead transparency.

## Role-Playing Labels

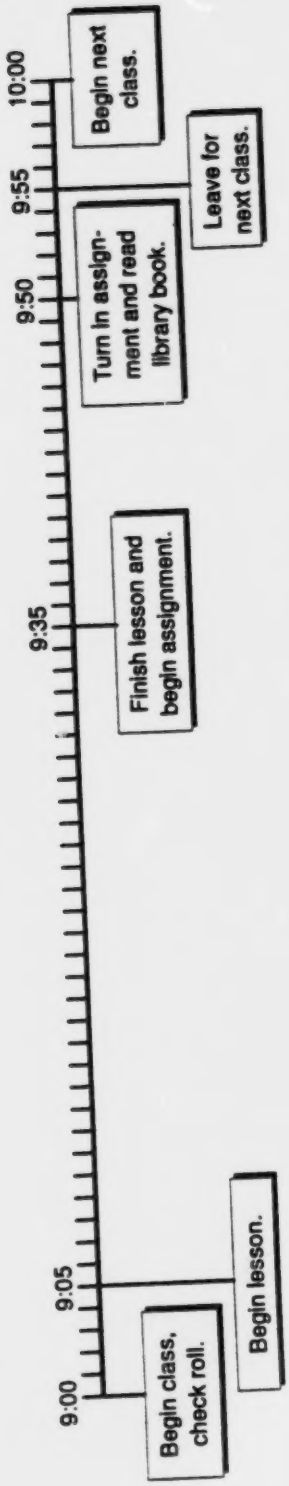
**Smoke Alarm**

**Smoke Alarm**

**Smoke Alarm**

Teacher: Use with Lesson Three, Page 9. Make copies for each group, and cut apart.

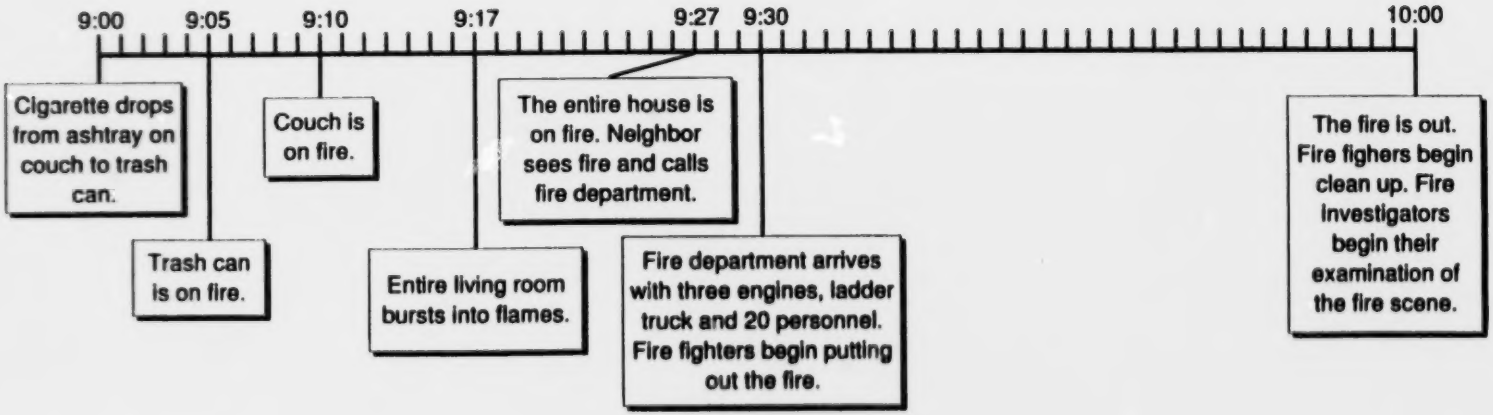
# Time Line Of Class




Teacher: Use with Lesson Four, Page 10. Transfer to overhead transparency.

# Fire Time Line Overlay

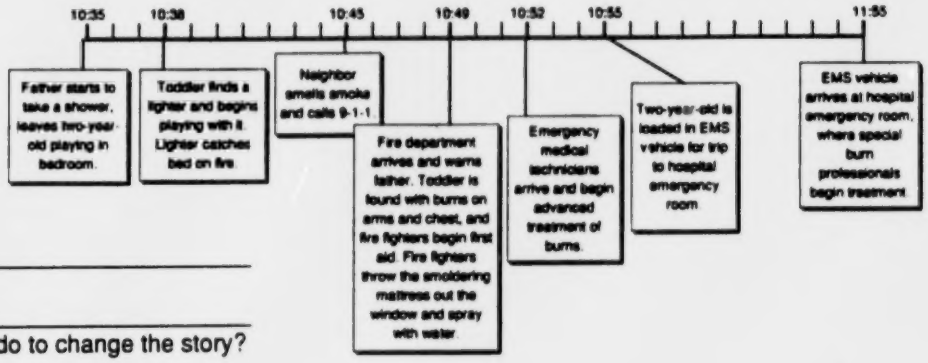
Teacher: Use with Lesson Four, Page 10. Transfer to overhead transparency.



# Seconds Count

Problem-Solving Activity

## Time Line 1




Briefly tell what happened

_____

_____

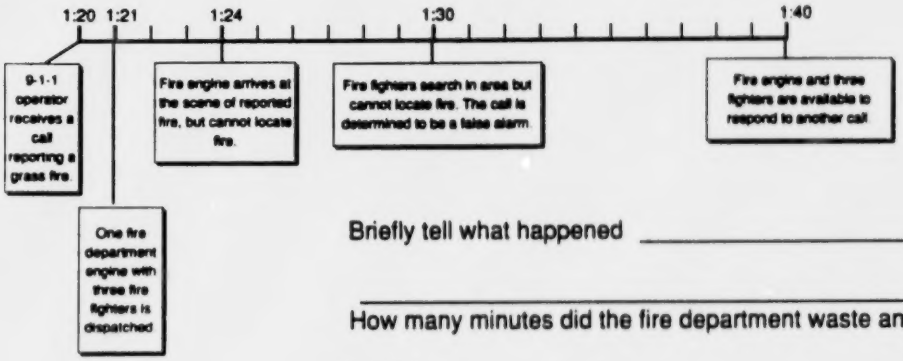
What could one person do to change the story?

_____

How many minutes did it take the fire department

to arrive after the neighbor called? _____

## Time Line 2



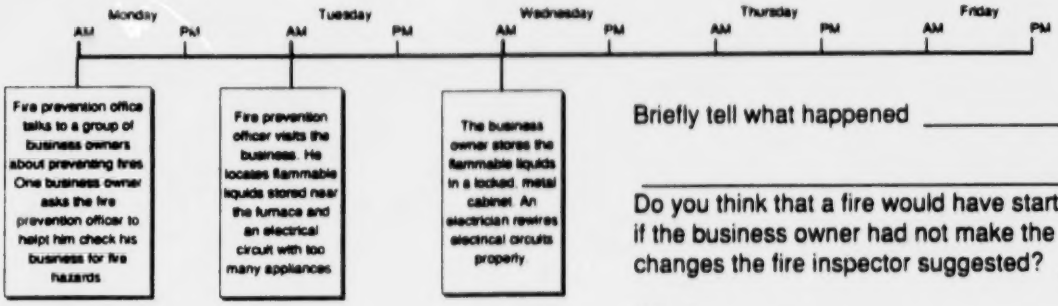

Briefly tell what happened _____

_____

How many minutes did the fire department waste answering the false

alarm? _____

## Time Line 3




Briefly tell what happened _____

_____

Do you think that a fire would have started if the business owner had not make the changes the fire inspector suggested? _____

Why?_____

Teacher: Use with Lesson Four, Page 10. Transfer to overhead transparency or poster.

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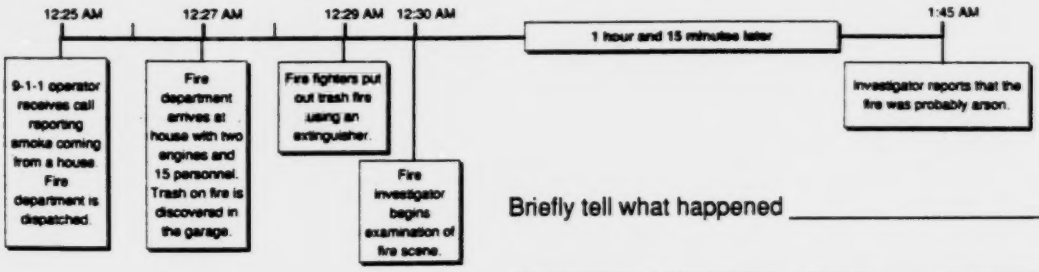
# Seconds Count (continued)

Problem-Solving Activity

**Time Line 4**




Briefly tell what happened _____

_____

What could have happened if the neighbor didn't see the fire and report it quickly? _____

How many minutes did the fire department spend at this fire? _____

## Professionals At Work

Read the following descriptions of fire service and medical professionals, then match with the titles below and complete the sentences.

**A. fire inspector**
**B. emergency medical technician**
**C. fire prevention officer**
**D. burn care specialists**
**E. fire fighter**
**F. fire investigator**

__ 1. This professional's primary job is to put out fires. He or she might also _____

_____

__ 2. This professional's primary job is to help people prevent fires. He or she might teach fire safety at schools or help inspect buildings for fire hazards.

__ 3. This professional treats medical emergencies where the accident occurs. At a fire, he or she might treat a person for burns or for breathing in dangerous smoke and gases. He or she might also treat _____

_____

__ 4. This professional's primary job is to carefully look at buildings for things that might cause fires. He or she tells how to correct problems so that a fire may be prevented. Some buildings that this person might inspect are _____

__ 5. This professional looks closely at the scene of the fire to determine how the fire was started and how it developed and spread. He or she is frequently involved in identifying fires that have been started on purpose.

__ 6. These professionals provide advanced types of medial care for people who have been burned. Their jobs include safely cleaning and treating large burns to prevent infections; replacing badly burned skin with skin grafts; and using physical therapy to exercise muscles that have been damaged. We usually call these professionals by these titles: _____

Teacher: Use with Lesson Four, Page 10. Transfer to overhead transparency or poster.

## Burns: Causes and Treatment

Burns from fires are only one type of burns. Medical experts group burns in three general categories, with six specific causes.

**The first four are generally classified *thermal burns*. Thermal burns are caused by high heat.**

**Flame** caused by fire, most frequently clothing on fire.

**Contact** caused by contacting, or touching, a hot object.

**Scald** caused by hot liquids.

**U-V Rays** (Ultra-violet rays) caused by the sun or sunlamps.

**The other two types of burns are:**

**Chemical** caused when the skin contacts a hazardous material, such as battery acid, drain cleaners, and some flammable liquids.

**Electrical** caused when the body directly contacts electrical energy (electrical current).

### Emergency treatment for each begins differently:

For thermal burns: Remove from the source of heat and cool with cool water. ♦ (This helps even with sunburn.)

For chemical burns: Usually flush with water ♦ for 20 minutes or more. ◷ Remove contaminated clothing. † (Some dry or powdered chemicals must be brushed off. Read the product label.)

For electrical burns: Turn off the electricity before touching the patient. Pull the plug or turn off the electrical power at the source.

**The next steps apply to all kind of burns.**

- Check breathing.
- Stop bleeding.
- Cover the burn with clean bandage or cloth.
- For major burns, ☎ call 9-1-1 or local emergency medical services or get the patient to a doctor's office or emergency room.

Teacher: Use with Lesson Five, Page 11. Transfer to overhead transparency.

Name _____

**SIXTH GRADE: Fire Safety Power** **POST-TEST**

Read each question, then write the best answer.

1. Fires are classified by letters, A, B and C. Tell the correct type of fire by writing the letter A, B or C in the blank.

_____ electrical appliances or wiring

_____ wood and paper

_____ flammable liquids, such as gasoline or cooking oil

2. Why should you report a fire immediately?

_____

3. The three general types of fire extinguishers are:

_____, _____ and _____.

4. You are not sure if a bottle of cleaner is a flammable liquid that might catch fire. How can you easily tell if the cleaner is a flammable liquid?

_____

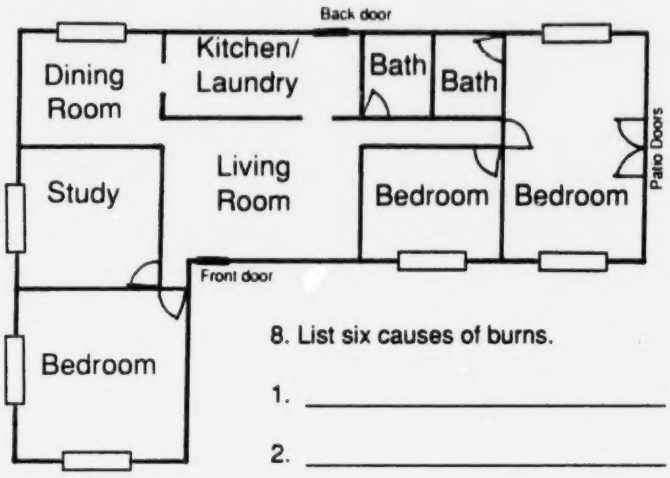
5. Four elements are needed to create a fire and keep it burning. Three of these are heat, oxygen and fuel. The fourth is:

_____.

6. List THREE professional jobs that are involved in responding to fire emergencies and providing care for burns:

1. _____
2. _____
3. _____

6. On the map, draw a circle in each place that a smoke alarm should be located. Then draw lines to show a fire exit plan.




7. List two guidelines for placing smoke alarms.

1. _____

_____

2. _____

_____

8. List six causes of burns.

1. _____ 4. _____

2. _____ 5. _____

3. _____ 6. _____

**Circle True or False.**

10. High-tension wires (outdoor power lines) are more dangerous than electric outlets in your home. **True False**

12. The chance of an electrical appliance catching fire is related to the amount of electricity that the appliance uses. **True False**

13. All burns are generally the same, so there is no difference in how you treat different burns. **True False**

Teacher: Use with Lesson Five, Page 11. Duplicate for student use.

35

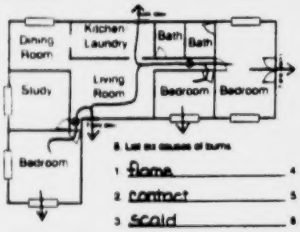
## ANSWER KEY-1

Name _____

**SIXTH GRADE: Fire Safety Power** PRE-TEST POST-TEST

Read each question, then write the best answer.

1. Fires are classified by letters, A, B and C. Tell the correct type of fire by writing the letter A, B or C in the blank.
   - C — electrical appliances or wiring
   - A — wood and paper
   - B — flammable liquids, such as gasoline or cooking oil
2. Why should you report a fire immediately? fire spreads/grows very quickly
3. The three general types of fire extinguishers are A, B and C.
4. You are not sure if a bottle of cleaner is a flammable liquid that might catch fire. How can you easily tell if the cleaner is a flammable liquid? a special label on container
5. Four elements are needed to create a fire and keep it burning. Three of these are heat, oxygen and fuel. The fourth is uninhibited chemical reaction
6. List THREE professional jobs that are involved in responding to fire emergencies and providing care for burns. (MD: emergency medical technician)
   1. fire fighter
   2. fire investigator
   3. burncare specialist (burn nurse, doctor, etc.)
7. List two guidelines for placing smoke alarms.
   1. outside each sleeping area
   2. on each level or story
8. List six causes of burns.
   1. flame
   2. contact
   3. scald
   4. U-V rays
   5. chemical
   6. electrical




**Circle True or False**

10. High-tension wires (outdoor power lines) are more dangerous than electric outlets in your home. (True) False
12. The chance of an electrical appliance catching fire is related to the amount of electricity that the appliance uses. (True) False
13. All burns are generally the same, so there is no difference in how you treat different burns. True (False)

Teacher: Use with Lesson One, Page 7. Duplicate for student use.

Commission on Fire Protection: Fire Safety for Texans 15 36 Sixth Grade: Fire Safety Power

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Name _____

**The ABCs of Fire Extinguishers**
Background Information / Classification Activity

**Types of Fires**

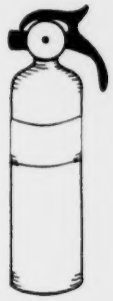
| Solid Fuel A | Flammable Liquid B | Electrical Appliances and Equipment — C |
|---|---|---|
| Examples<br>• wood<br>• paper<br>• rubber<br>• most plastics<br>• most clothes, upholstery, wall and window coverings<br>• most furniture<br>• most trash | Examples<br>• gasoline<br>• kerosene<br>• oil, including cooking oil<br>• grease, including cooking grease (animal fat)<br>• paint thinner<br>• solvents<br>• some strippers<br>NOTE: Most flammable liquids are labeled with a warning message. | Examples<br>• house wiring<br>• television<br>• video cassette recorder<br>• computer<br>• CD or record player, stereo<br>• electric fan<br>• other electric appliances<br>NOTE: When an electrical fire starts in most of these, surrounding materials can be ignited creating another type of fire. |

**Types of Fire Extinguishers**

Fire extinguishers are grouped the same as fires: A, B and C.

Some fire extinguishers are made to put out more than one type of fire. These are examples of fire extinguishers sold for use at home or work.

Type A: Water to cool
Type BC: Carbon dioxide or chemical to smother
Type ABC: Another type of chemical to smother and cool



**[illegible]**

Circle the type of extinguisher needed to put out a fire involving the object. Write whether the fire was probably cooled or smothered.

| Object | A | B | C | Cool or smother? |
|---|---|---|---|---|
| Grease fire | A | (B) | C | smother |
| Gasoline fire in car | A | (B) | C | smother |
| Bedding on fire | (A) | B | C | cool |
| Television | A | B | (C) | smother |
| Electrical circuit box | A | B | (C) | smother |
| Trash can with paper and cooking grease on fire | (A) | (B) | C | cool and smother |

BONUS: An extinguisher labeled ABC would be correct for which fires on this page? All of them

Teacher: Use with Lesson One, Page 7. Duplicate for student use.

Commission on Fire Protection: Fire Safety for Texans 33 Sixth Grade: Fire Safety Power

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Name _____

**Overpower The Fire**
Analysis Activity

Look at each object and answer the questions in the boxes.

| Fire or fire hazard | What type of fire (solid fuel, flammable liquid, or electrical)? | What type of extinguisher should be used? |
|---|---|---|
| 1 | electrical (may also cause solid-fuel fire in cover) | C (A) |
| 2 | solid fuel | A |
| 3 | flammable liquid | B |
| 4 | solid fuel | A |
| 5 | solid fuel with possible flammable liquid or electrical | ABC |
| 6 | flammable liquid | B |
| 7 | electrical (may also cause solid-fuel fire in cover) | C (A) |
| 8 | flammable liquid | B |

Teacher: Use with Lesson One, Page 7. Duplicate for student use.

Commission on Fire Protection: Fire Safety for Texans 34 Sixth Grade: Fire Safety Power

---

Name _____

**Heat Equals Danger**
Analysis Activity

**Electricity** is the flow of electrons through simple materials and devices.

- The flow of electrons creates power or energy that causes electric appliances to operate.
- The flow of electrons also creates heat.

Electricity is used to
- Produce heat
- Produce light
- Turn motors
- Turn switches on and off

If an electrical appliance
produces more heat OR produces more light OR turns a motor faster
the appliance uses more electricity and is more likely to cause a fire.

HINT: The wattage of an appliance is one indicator of how much electricity the appliance uses. The higher the number, the more electricity it uses.

**[illegible]**

Read each sentence. Decide which bold word fits best, and circle it.

**HOUSE APPLIANCES**

1. A clock uses less electricity BECAUSE it turns a motor (SLOWLY) / QUICKLY. SO ... it is (MORE) / LESS likely to start a fire.
2. A fan uses more electricity BECAUSE it turns a motor SLOWLY / (QUICKLY). SO ... it is (MORE) / LESS likely to start a fire.
3. A flashlight uses less electricity (compared to a reading light) BECAUSE it produces (MORE) / LESS light. SO ... it is (MORE) / LESS likely to start a fire.
4. A cooking stove uses more electricity BECAUSE it produces (MORE) / LESS heat. SO ... it is (MORE) / LESS likely to start a fire.

**SPECIAL PROBLEMS**

5. High-tension wires — the wires on tall poles that bring electricity to our homes and other buildings — carry very large amounts of electricity. BECAUSE a high-tension wire has a large amount of electricity, it can produce (MORE) / LESS heat and is (MORE) / LESS likely to start a fire.
6. A hair dryer uses more electricity BECAUSE it produces (MORE) / LESS heat AND it turns a motor (the fan) SLOWLY / (QUICKLY). SO ... it is (MORE) / LESS likely to start a fire.

Teacher: Use with Lesson Two, Page 8. Duplicate for student use.

Commission on Fire Protection: Fire Safety for Texans 35 Sixth Grade: Fire Safety Power



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## ANSWER KEY-2

Name _____

### Higher Heat
Analysis and Classification Activity

Look at each pair of objects. Decide which one is more likely to cause a fire, then write the reason:

It produces more heat
It produces more light
It turns a motor faster
A combination (name which ones)

| Circle the object that is more likely to cause a fire | Why is it more likely to cause a fire? |
|---|---|
| ● small light (large light) | It produces more light. |
| ● clock (fan) | It turns a motor more quickly. |
| ● flash light (high-power reading light) | It produces more light. |
| ● (high-tension wires) household extension cord | It produces more heat because it carries more electricity. |
| ● MAKE UP YOUR OWN! _____ _____ | Accept reasonable answers. |

**BONUS:** With an adult's help, look for the wattage labels on appliances at home. Make a list of the appliances you investigated and their wattages. Which ones use the most electricity? Do you think this means they are more likely to cause fires? Why?

Accept reasonable answers.

Teacher: Use with Lesson Two, Page 5. Duplicate for student use.

Commission on Fire Protection: Fire Safety for Texans 26 Sixth Grade: Fire Safety Power

Name _____

### Are These Homes Prepared?
Analysis Activity

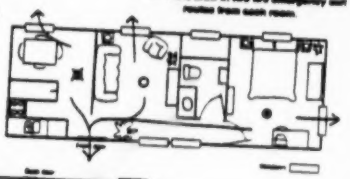
**Look at these homes. Are smoke alarms located where they should be?**

X Put an X on a smoke alarm if it is not located in an appropriate location.

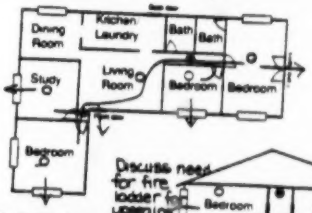
Draw in smoke alarms that should be added. Use solid circles ● to show smoke alarms that are needed for minimum coverage. Use open circles ○ to show other smoke alarms that would give extra coverage.

☞ Then, draw in two fire emergency exit routes from each room.

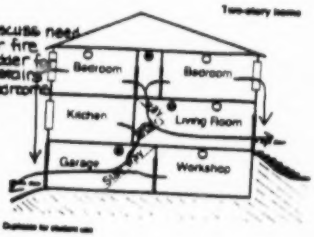
One-bedroom apartment



Home for a large family




Two-story home




Discuss need for fire ladder for upstairs bedrooms

Write two general rules for locating smoke alarms.

1. outside sleeping areas
2. on every floor or level

Teacher: Use with Lesson Three, Page 8. Duplicate for student use.

Commission on Fire Protection: Fire Safety for Texans 27 Sixth Grade: Fire Safety Power

Name _____

### A Powerful Plan For Home Safety
Planning Activity

✎ Draw a map of your home to scale. Mark the location of each smoke alarm with a solid circle ●. Draw in other locations where smoke alarms would be helpful with open circles ○. Then draw two fire emergency exit ways from each room.

Scale: 1 square = ____ feet/foot

Accept reasonable answers.

**Plan For Fun!**

Help keep your family safe during the holidays. Hundreds of people die and are injured in fires during holiday celebrations each year. Read the following guidelines for holiday safety. Pick five rules for holiday fire safety that you feel could affect your family, and write your list on the back or a separate page.

- Never leave cooking unattended, such as putting a turkey in the oven to roast all night or while shopping.
- Don't overload extension cords with Christmas lights. Follow directions on the package.
- Never leave menorah candles or other holiday candles unattended. Use glass covers around candles.
- Celebrate New Year's Eve with games instead of fireworks.
- Turn off and unplug Christmas lights while sleeping or away from home.
- Celebrate Independence Day with a neighborhood parade instead of fireworks.
- On camping vacations or holidays, never leave campfires or cooking fires unattended. Always cover with water and dirt to put the fire out completely before sleeping or leaving the campsite.
- Use flashlights instead of candles in Halloween jack-o-lanterns.
- Think safety first whenever you're celebrating. Some of the most tragic fires occur during holiday seasons.

Accept reasonable answers.

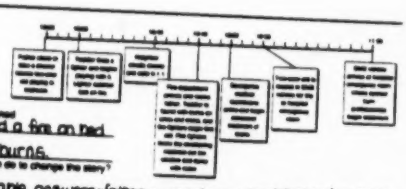
Teacher: Use with Lesson Three, Page 9. Duplicate for student use.

Commission on Fire Protection: Fire Safety for Texans 28 Sixth Grade: Fire Safety Power

Name _____

### Seconds Count
Problem-Solving Activity

Time Line 1



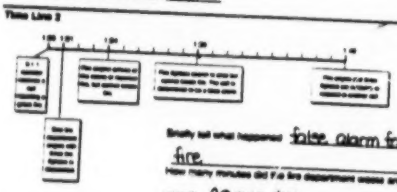
Briefly tell what happened: Toddler started a fire on bed that caused burns.

What could one person do to change the story?

Accept reasonable answers: father watch baby; neighbor not call; etc.

How many minutes did it take the fire department to arrive after the neighbor called? four

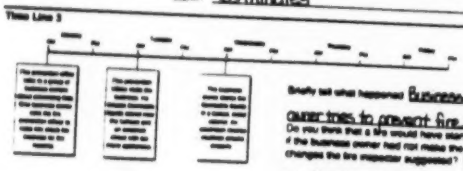
Time Line 2



Briefly tell what happened: false alarm for a grass fire.

How many minutes did the fire department waste answering the false alarm? 20 minutes

Time Line 3



Briefly tell what happened: Business owner tries to prevent fire.

Do you think that a fire would have started if the business owner had not make the changes the fire inspector suggested? yes

Why? two dangerous conditions existed.

Teacher: Use with Lesson Four, Page 10. Duplicate for student use.

Commission on Fire Protection: Fire Safety for Texans 29 Sixth Grade: Fire Safety Power

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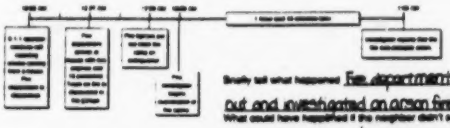
## ANSWER KEY-3

Name _____

### Seconds Count (continued)

Problem-Solving Activity

Time Line 4



Briefly tell what happened: Fire department put out and investigated an arson fire.

What could have happened if the neighbor didn't see the fire and report it quickly? House completely burned

How many minutes did the fire department spend at the fire? 80 minutes

**Professionals At Work**

Read the following descriptions of fire service and medical professionals, then match with the titles below and complete the sentences.

A. Fire ___ solver
B. emergency medical technician
C. fire prevention officer
D. burn care specialists
E. fire fighter
F. fire investigator

E 1. This professional's primary job is to put out fires. He or she might also rescue people and clean up after fires.

C 2. The professional's primary job is to help people prevent fires. He or she might teach fire safety at schools or help inspect buildings for fire hazards.

B 3. This professional treats medical emergencies where the accident occurs. At a fire, he or she might treat a person for burns or for breathing in dangerous smoke and gases. He or she might also treat cuts, broken arms or legs, and injuries from auto accidents.

A 4. This professional's primary job is to carefully look at buildings for things that might cause fires. He or she tells how to correct problems so that a fire may be prevented. Some buildings that this person might inspect are homes, stores, offices, shops and factories.

F 5. This professional looks closely at the scene of the fire to determine how the fire was started and how it damaged and spread. He or she is frequently involved in identifying fires that have been started on purpose.

D 6. These professionals provide advanced types of medical care for people who have been burned. Their jobs include safely cleaning and treating large burns to prevent infections, replacing badly burned skin with skin grafts, and using physical therapy to exercise muscles that have been damaged. We usually call these professionals by these titles: nurses, doctors, therapists

Teacher: Use with Lesson Four, Page 10. Duplicate for student use.



Name _____

### A Time Line For Safety

Problem-Solving Activity

A time line is another way to tell a story. Write your own time line about the story below and describe why reporting a fire promptly is important. Then make a list of all the fire department and medical professionals who were involved.

**Story**

At 10:00 p.m., the smoke alarm went off in the Martin's house. Because the family had practiced their fire emergency exit plan, everyone was outside in their sleeping place in two minutes. Tom went to the neighbor's house and called 9-1-1.

The 9-1-1 operator received Tom's call at 10:05 p.m. One fire department engine arrived at the Martin's house in three minutes and began searching for the fire. The fire fighters immediately found an electrical fire in the garage. The fire was completely out in six minutes. However, one fire fighter burned his arm and was treated by an emergency medical technician.

The fire fighters set up a large fan to blow smoke out of the house. When the smoke was cleared an hour later, a fire investigator carefully checked the garage and house. His investigation took about 45 minutes.

The fire investigator said the fire was the result of damaged electrical wiring. He suggested that the Martins have a fire inspector or an electrician thoroughly check the house. Mr. Martin agreed to call the fire inspector the next morning.

**Time Line** Answers may vary. Accept reasonable answers. Possible answers could include all actions, to calling the inspector. One suggested answer:

10:00 Alarm goes off — 10:02 Everyone out — 10:05 call 9-1-1 — 10:08 Fire dept arrives — 10:14 Fire is out.

Reporting a fire immediately is important because fire spreads very quickly.

Accept other reasonable answers.

List of people in the story

| | | |
|---|---|---|
| the Martin family | emergency medical technician | fire inspector |
| neighbor | fire investigator | electrician |
| fire fighters | | |

Teacher: Use with Lesson Four, Page 10. Duplicate for student use.



Name _____

### A Guide To Burns

Group Classification Activity

Read each example, then check the type of burn. Discuss special first aid actions for each.

| What type of burn? | Flame | Contact | Scald | U-V Rays | Chemical | Electrical | What first aid or other actions should be done? |
|---|---|---|---|---|---|---|---|
| A boy stays outside for several hours while playing basketball. His face and arms are burned. | | | | X | | | cool water (sunscreen on next outing) |
| Some battery acid splashes on a mechanic while he is working on a car. His leg is burned by the acid. | | | | | X | | wash thoroughly |
| A pot of hot coffee spills when a child pulls up on the table. The child's shoulder is burned. | | | X | | | | cool with cool water; see doctor for large area |
| While she is ironing clothes, a young woman accidentally touches her hand with the iron. Her hand is burned. | | X | | | | | cool with cool water |
| While using an electric grass cutter, a man accidentally steps in water. He is shocked and falls down, still holding the cutter. | | | | | | X | turn off power; call 9-1-1 or get medical assistance |
| A woman's blouse sleeve catches fire while she is cooking. Her arm and hand are burned. | X | | | | | | cool with cool water; see doctor for large or deep burn |

**Fire Facts**

The four elements of fire are:

1. Heat 2. Fuel 3. Oxygen
4. Uninhibited C. Chemical R. Reactions

Two guidelines for locating smoke alarms:

1. outside or near sleeping areas (bedrooms)
2. on every floor or level

Teacher: Use with Lesson Five, Page 11. Duplicate for student use.



Name _____

### Warning: Burn Danger

Problem Analysis and Creative-Writing Activity

From the list below, select three items to complete the activity. Write the name of the item in the first blank in each section. Answer the questions, then create a burn warning label for the item.

| | | | |
|---|---|---|---|
| Electric toaster | Chemical cleaner | Coffee pot | Sunlamp |
| Heater | Extension cord | Gas cooking grill | Battery |
| Bleach | Electric frying pan | Electric grass edger | Hair dryer |

| | |
|---|---|
| Name of item: Selection from list above. How can it cause burns? Note relationship to six burn causes. If a burn occurs, what should be done first? Must be appropriate for type of burn. | Write your own warning label: Answers should reflect awareness of the burn hazards of the items, plus additional awareness of general fire prevention. |
| Name of item: How can it cause burns? If a burn occurs, what should be done first? | Write your own warning label: |
| Name of item: How can it cause burns? If a burn occurs, what should be done first? | Write your own warning label: |

Teacher: Use with Lesson Five, Page 11. Duplicate for student use.





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# Student Materials — Duplicating Masters

Name _____

# The ABCs of Fire Extinguishers

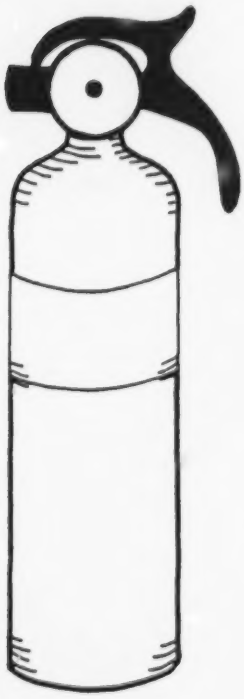
Background Information / Classification Activity

## Types of Fires

| Solid Fuel<br>A | Flammable Liquid<br>B | Electrical Appliances and Equipment — C |
|---|---|---|
| *Examples:*<br>• wood<br>• paper<br>• rubber<br>• most plastics<br>• most clothes, upholstery, wall and window coverings<br>• most furniture<br>• most trash | *Examples:*<br>• gasoline<br>• kerosene<br>• oil, including cooking oil<br>• grease, including cooking grease (animal fat)<br>• paint thinner<br>• solvents<br>• some cleaners<br>NOTE: Most flammable liquids are labeled with a warning message. | *Examples:*<br>• house wiring<br>• television<br>• video cassette recorder<br>• computer<br>• CD or record player, stereo<br>• electric fan<br>• other electric appliances<br>NOTE: When an electrical fire starts in most of these, surrounding materials can be ignited, creating another type of fire. |

## Types of Fire Extinguishers

Fire extinguishers are grouped the same as fires: A, B and C.



Some fire extinguishers are made to put out more than one type of fire. These are examples of fire extinguishers sold for use at home or work:

**Type A:** Water to cool

**Type BC:** Carbon dioxide or chemical to smother

**Type ABC:** Another type of chemical to smother and cool

### Classification Activity

Circle the type of extinguisher needed to put out a fire involving the object. Write whether the fire was probably cooled or smothered.

| Object | A | B | C | Cool or smother? |
|---|---|---|---|---|
| Grease fire | A | B | C | |
| Gasoline fire in car | A | B | C | |
| Bedding on fire | A | B | C | |
| Television | A | B | C | |
| Electrical circuit box | A | B | C | |
| Trash can with paper and cooking grease on fire | A | B | C | |

**BONUS:** An extinguisher labeled ABC would be correct for which fires on this page?

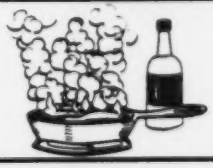
Teacher: Use with Lesson One, Page 7. Duplicate for student use.

Name _____

# Overpower The Fire

Analysis Activity

Look at each object and answer the questions in the boxes.

| Fire or fire hazard | **What type of fire** (solid fuel, flammable liquid, or electrical)? | **What type of extinguisher should be used?** |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |
| 8.  | | |

Teacher: Use with Lesson One, Page 7. Duplicate for student use.

Name _____

# Heat Equals Danger

Analysis Activity

**Electricity** is the flow of electrons through simple materials and devices.

- The flow of electrons creates **power** or **energy** that causes electric appliances to operate.
- The flow of electrons also creates **heat.**

**Electricity** is used to:

- Produce heat
- Produce light
- Turn motors
- Turn switches on and off

If an electrical appliance

**produces more heat OR produces more light OR turns a motor faster**

the appliance uses more electricity and is more likely to cause a fire

**HINT:** The wattage of an appliance is one indicator of how much electricity the appliance uses. The higher the number, the more electricity it uses.

## Heat Equals Danger

Read each sentence. Decide which bold word fits best, and circle it.

| | | | |
|---|---|---|---|
| **HOUSE APPLIANCES** | | | |
| 1. A clock uses less electricity BECAUSE it turns a motor **SLOWLY / QUICKLY.** | SO ... it is **MORE / LESS** likely to start a fire. | 2. A fan uses more electricity BECAUSE it turns a motor **SLOWLY / QUICKLY.** | SO ... it is **MORE / LESS** likely to start a fire |
| 3. A flashlight uses less electricity (compared to a reading light) BECAUSE it produces **MORE / LESS** light. | SO ... it is **MORE / LESS** likely to start a fire | 4. A cooking stove uses more electricity BECAUSE it produces **MORE / LESS** heat. | SO ... it is **MORE / LESS** likely to start a fire. |
| **SPECIAL PROBLEMS** | | | |
| 5. High-tension wires — the wires on tall poles that bring electricity to our homes and other buildings — carry very large amounts of electricity. | BECAUSE a high-tension wire has a large amount of electricity, it can produce **MORE / LESS** heat and is **MORE / LESS** likely to start a fire. | 6. A hair dryer uses more electricity BECAUSE it produces **MORE / LESS** heat AND it turns a motor (the fan) **SLOWLY / QUICKLY.** | SO ... it is **MORE / LESS** likely to start a fire. |

Teacher: Use with Lesson Two, Page 8. Duplicate for student use.

Name _____

# Higher Heat

Analysis and Classification Activity

Look at each pair of objects. Decide which one is more likely to cause a fire, then write the reason:

It produces more heat

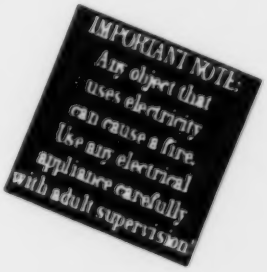
It produces more light

It turns a motor faster

A combination (name which ones)

| | Circle the object that is more likely to cause a fire | Why is it more likely to cause a fire? |
|---|---|---|
| ❶ | small light large light | |
| ❷ | clock fan | |
| ❸ | flash light high-power reading light | |
| ❹ | high-tension wires<br>household extension cord | |
| ❺ | *MAKE UP YOUR OWN!*<br>_____<br>_____ | |

**BONUS:** With an adult's help, look for the wattage labels on appliances at home. Make a list of the appliances you investigated and their wattages. Which ones use the most electricity? Do you think this means they are more likely to cause fires? Why?




Teacher: Use with Lesson Two, Page 8. Duplicate for student use.

43

Name _____

# Are These Homes Prepared?

Analysis Activity

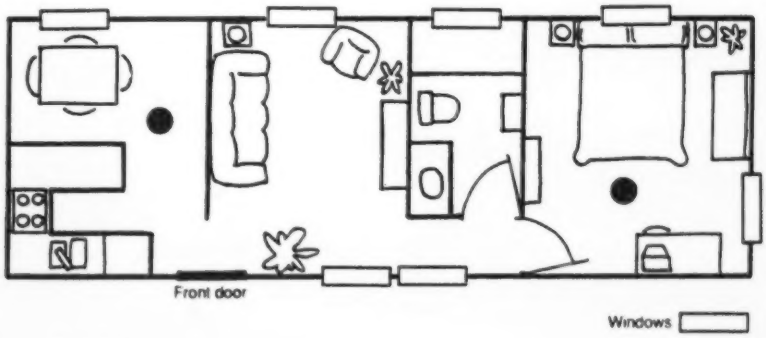
**Look at these homes.**
**Are smoke alarms located where they should be?**

✘ Put an X on a smoke alarm if it is not located in an appropriate location.

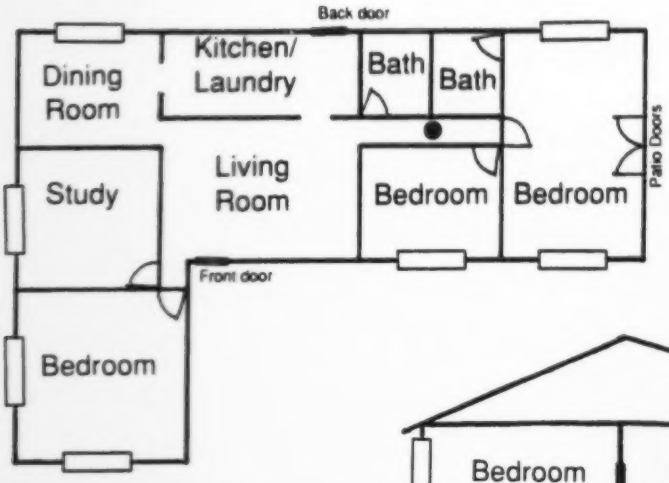
Draw in smoke alarms that should be added:
Use solid circles ● to show smoke alarms that are needed for minimum coverage.
Use open circles ○ to show other smoke alarms that would give extra coverage.

➡ **Then, draw in two fire emergency exit routes from each room.**

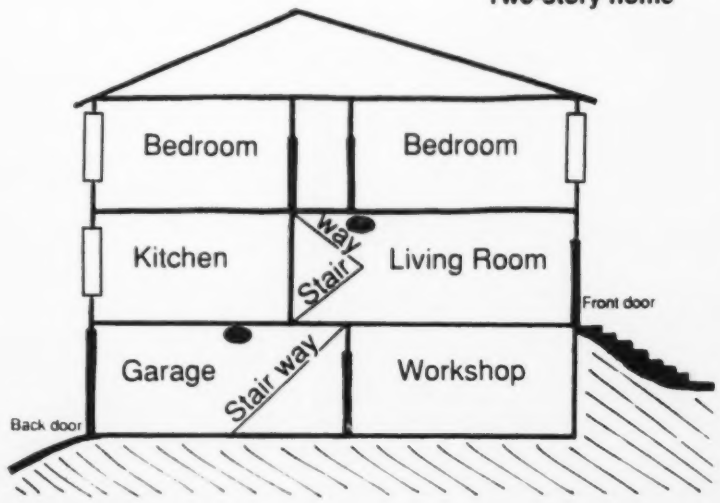
**One-bedroom apartment**




**Home for a large family**




**Two-story home**




**Write two general rules for locating smoke alarms.**

1. _____

_____

2. _____

_____

Teacher: Use with Lesson Three, Page 9. Duplicate for student use.

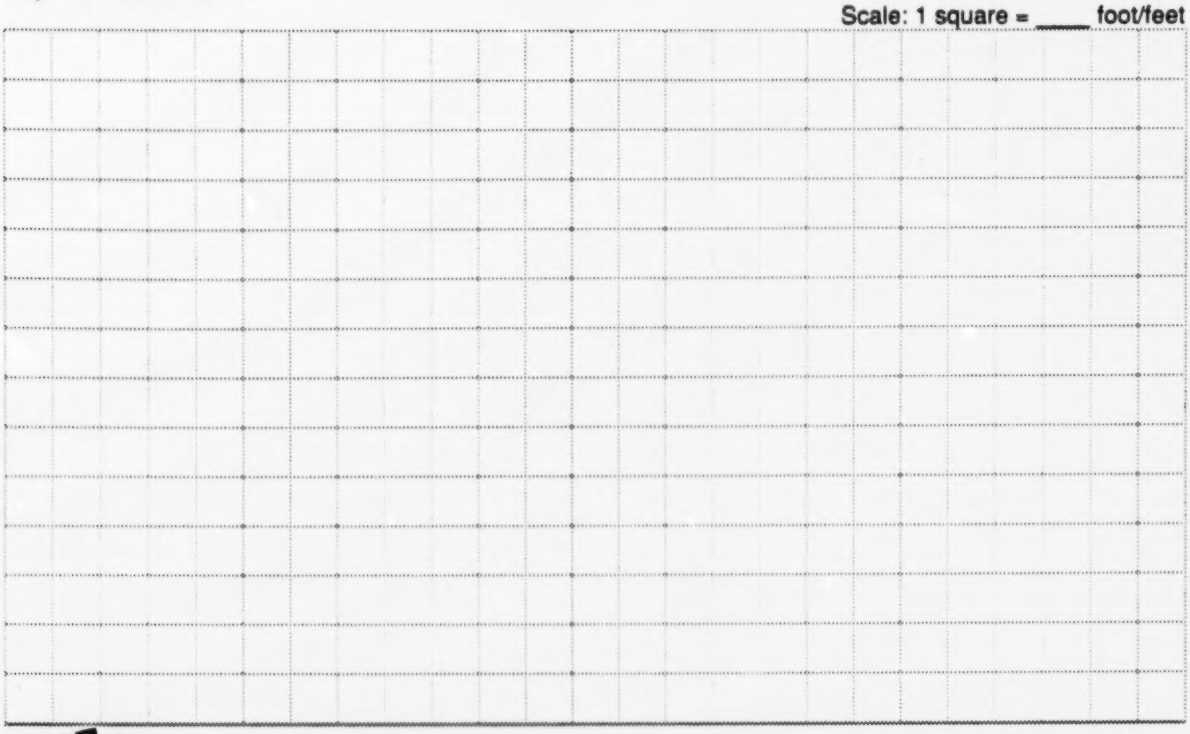
Name _____

# A Powerful Plan For Home Safety

Planning Activity

✎ Draw a map of your home to scale. Mark the location of each smoke alarm with a solid circle ●. Draw in other locations where smoke alarms would be helpful with open circles ○. Then draw two fire emergency exit ways from each room.

Scale: 1 square = ____ foot/feet



## Plan For Fun!

Help keep your family safe during the holidays. Hundreds of people die and are injured in fires during holiday celebrations each year. Read the following guidelines for holiday safety. Pick five rules for holiday fire safety that you feel could affect your family, and write your list on the back or a separate page.

- Never leave cooking unattended, such as putting a turkey in the oven to roast all night or while shopping.
- Don't overload extension cords with Christmas lights. Follow directions on the package.
- Never leave menorah candles or other holiday candles unattended. Use glass covers around candles.
- Celebrate New Year's Eve with games instead of fireworks.
- Turn off and unplug Christmas lights while sleeping or away from home.
- Celebrate Independence Day with a neighborhood parade instead of fireworks.
- On camping vacations or holidays, never leave campfires or cooking fires unattended. Always cover with water and dirt to put the fire out completely before sleeping or leaving the campsite.
- Use flashlights instead of candles in Halloween jack-o-lanterns.
- Think safety first whenever you're celebrating. Some of the most tragic fires occur during holiday seasons.

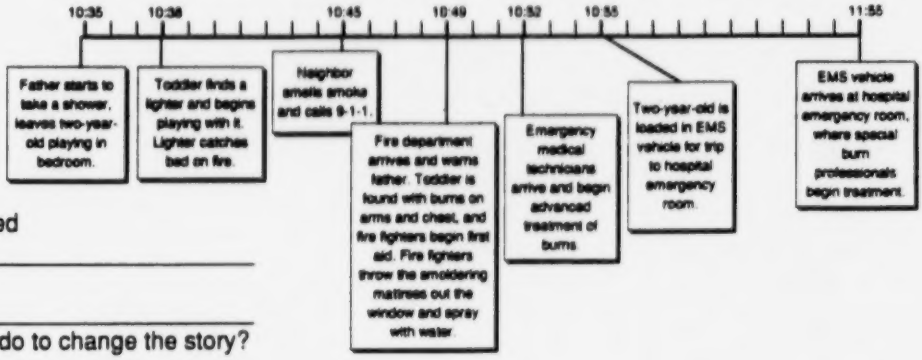
Teacher: Use with Lesson Three, Page 9. Duplicate for student use.

Name _____

# Seconds Count

Problem-Solving Activity

## Time Line 1




Briefly tell what happened

_____

_____

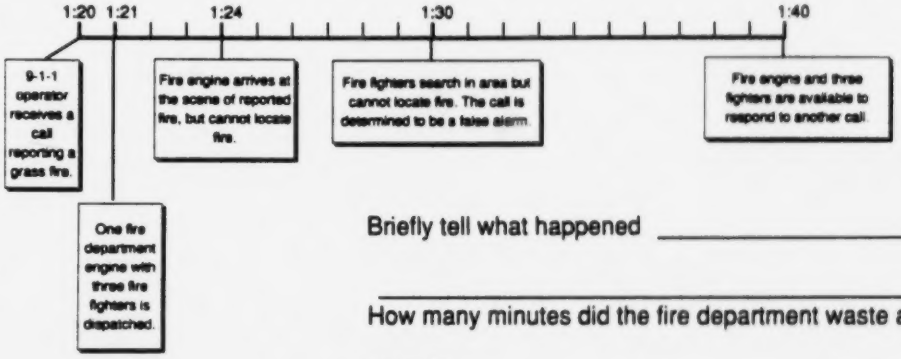
What could one person do to change the story?

_____

How many minutes did it take the fire department

to arrive after the neighbor called? _____

## Time Line 2



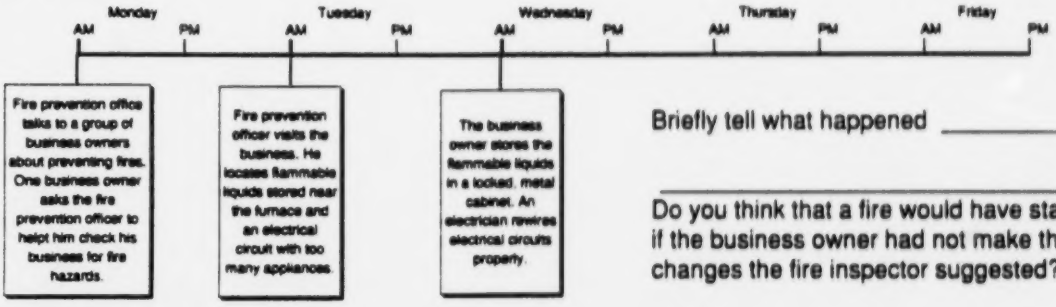

Briefly tell what happened _____

_____

How many minutes did the fire department waste answering the false

alarm? _____

## Time Line 3




Briefly tell what happened _____

_____

Do you think that a fire would have started if the business owner had not make the changes the fire inspector suggested? _____

Why?_____

Teacher: Use with Lesson Four, Page 10. Duplicate for student use.

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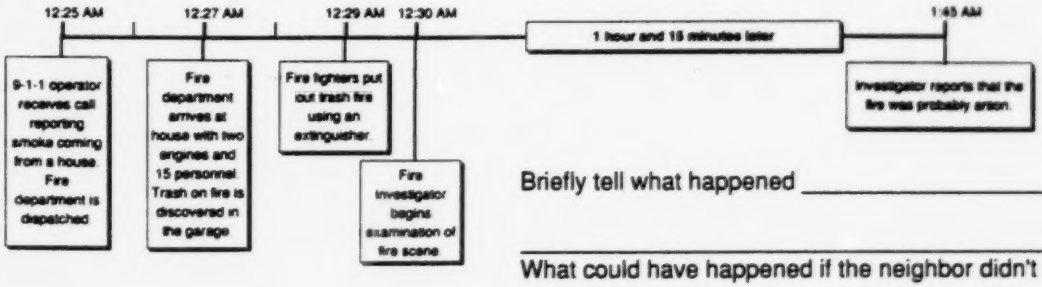
Name _____

## Seconds Count (continued)

Problem-Solving Activity

### Time Line 4




Briefly tell what happened _____

_____

What could have happened if the neighbor didn't see the fire and report it quickly? _____

How many minutes did the fire department spend at this fire? _____

## Professionals At Work

Read the following descriptions of fire service and medical professionals, then match with the titles below and complete the sentences.

**A. fire inspector**
**B. emergency medical technician**
**C. fire prevention officer**
**D. burn care specialists**
**E. fire fighter**
**F. fire investigator**

__ 1. This professional's primary job is to put out fires. He or she might also _____

_____

__ 2. This professional's primary job is to help people prevent fires. He or she might teach fire safety at schools or help inspect buildings for fire hazards.

__ 3. This professional treats medical emergencies where the accident occurs. At a fire, he or she might treat a person for burns or for breathing in dangerous smoke and gases. He or she might also treat _____

_____

__ 4. This professional's primary job is to carefully look at buildings for things that might cause fires. He or she tells how to correct problems so that a fire may be prevented. Some buildings that this person might inspect are _____

__ 5. This professional looks closely at the scene of the fire to determine how the fire was started and how it developed and spread. He or she is frequently involved in identifying fires that have been started on purpose.

__ 6. These professionals provide advanced types of medical care for people who have been burned. Their jobs include safely cleaning and treating large burns to prevent infections; replacing badly burned skin with skin grafts; and using physical therapy to exercise muscles that have been damaged. We usually call these professionals by these titles: _____

Teacher: Use with Lesson Four, Page 10. Duplicate for student use.



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Name _____

# A Time Line For Safety

Problem-Solving Activity

A time line is another way to tell a story. Write your own time line about the story below and describe why reporting a fire promptly is important. Then make a list of all the fire department and medical professionals who were involved.

## Story

At 10:00 p.m., the smoke alarm went off in the Martin's house. Because the family had practiced their fire emergency exit plan, everyone was outside in their meeting place in two minutes. Tom went to the neighbor's house and called 9-1-1.

The 9-1-1 operator received Tom's call at 10:05 p.m. One fire department engine arrived at the Martin's house in three minutes and began searching for the fire. The fire fighters immediately found an electrical fire in the garage. The fire was completely out in six minutes. However, one fire fighter burned his arm and was treated by an emergency medical technician.

The fire fighters set up a large fan to blow smoke out of the house. When the smoke was cleared an hour later, a fire investigator carefully checked the garage and house. His investigation took about 45 minutes.

The fire investigator said the fire was the result of damaged electrical wiring. He suggested that the Martins have a fire inspector or an electrician thoroughly check the house. Mr. Martin agreed to call the fire inspector the next morning.

## Time Line

Reporting a fire immediately is important because _____

_____

_____

**List of people in the story**

Teacher: Use with Lesson Four, Page 10. Duplicate for student use.

Name _____

# A Guide To Burns

Group Classification Activity

Read each example, then check the type of burn. Discuss special first aid actions for each.

| What type of burn? | Flame | Contact | Scald | U-V Rays | Chemical | Electrical | What first aid or other actions should be done? |
|---|---|---|---|---|---|---|---|
| A boy stays outside for several hours while playing baseball. His face and arms are burned. | | | | | | | |
| Some battery acid splashes on a mechanic while he is working on a car. His leg is burned by the acid. | | | | | | | |
| A pot of hot coffee spills when a child pulls up on the table. The child's shoulder is burned. | | | | | | | |
| While she is ironing clothes, a young woman accidentally touches her hand with the iron. Her hand is burned. | | | | | | | |
| While using an electric grass cutter, a man accidentally steps in water. He is shocked and falls down, still holding the cutter. | | | | | | | |
| A woman's blouse sleeve catches fire while she is cooking. Her arm and hand are burned. | | | | | | | |

## Looking Back

The four elements of fire are:

1. H_____ 2. F_____ 3. O _____

4. U_____ C _____ R_____

Two guidelines for locating smoke alarms

1. _____

2. _____

Teacher: Use with Lesson Five, Page 11. Duplicate for student use.

Name _____

# Warning: Burn Danger

Problem Analysis and Creative-Writing Activity

From the list below, select three items to complete the activity. Write the name of the item in the first blank in each section. Answer the questions, then create a burn warning label for the item.

| | | | |
|---|---|---|---|
| Electric toaster | Chemical cleaner | Coffee pot | Sunlamp |
| Heater | Extension cord | Gas cooking grill | Battery |
| Bleach | Electric frying pan | Electric grass edger | Hair dryer |

| | |
|---|---|
| ❶ Name of item:<br><br>How can it cause burns?<br><br>If a burn occurs, what should be done first? | Write your own warning label: |
| ❷ Name of item:<br><br>How can it cause burns?<br><br>If a burn occurs, what should be done first? | Write your own warning label: |
| ❸ Name of item:<br><br>How can it cause burns?<br><br>If a burn occurs, what should be done first? | Write your own warning label: |

Teacher: Use with Lesson Five, Page 11. Duplicate for student use.